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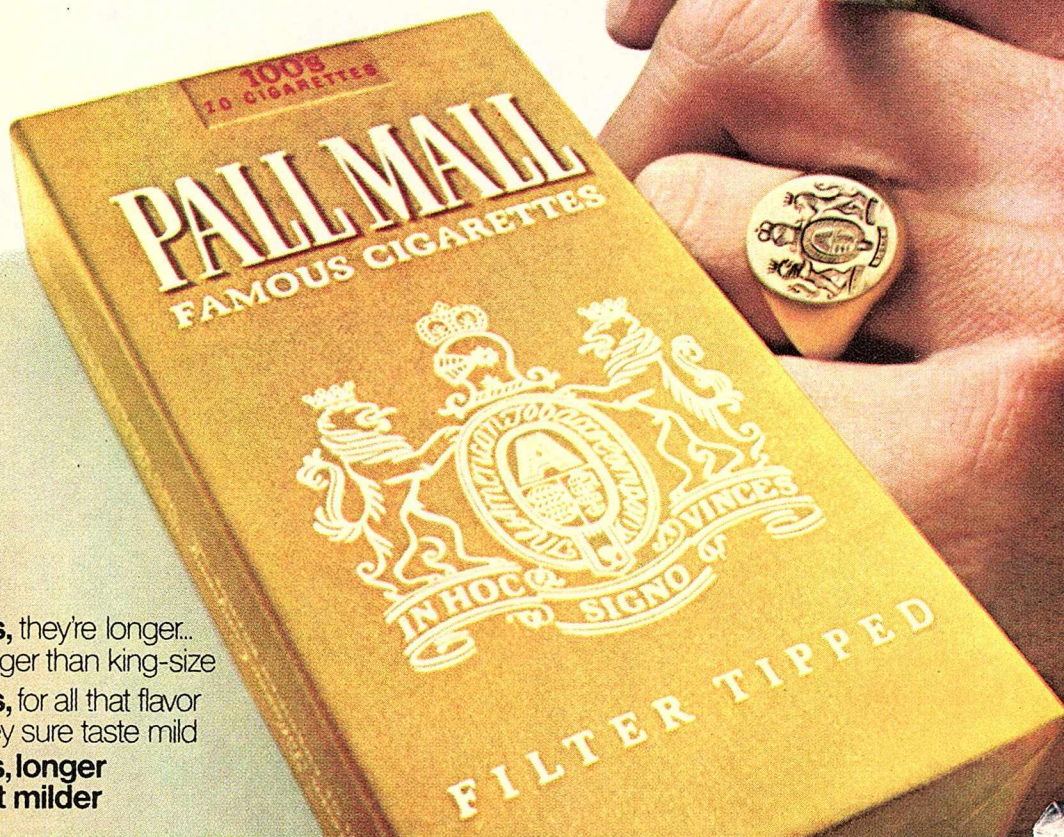
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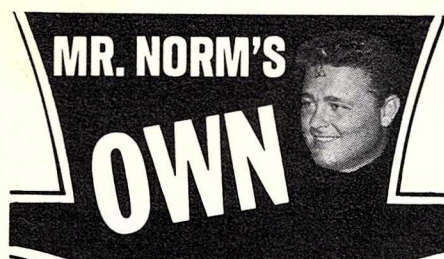
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COVER: Bill Tidwell maintains a stoic countenance as smoke billows out behind Vince Rossi's semi-streamliner. The car is indicative of the new breed of Fuel Dragsters, and serves to lead off our special Dragster Section in this issue. The photo was shot at Lions dragstrip by Fred Gregory under the direction of Albert Esparza. Fred used a Hasselblad 500C camera set at f8 @ 1/250-second with a 500mm Tele-Tessar lens, and loaded with Kodak Ektachrome-X film.

BELOW: Why is this man sitting in a pile of junk? For the answer to this and other questions you probably would never ask, turn to the Dragster Section beginning on page 58.



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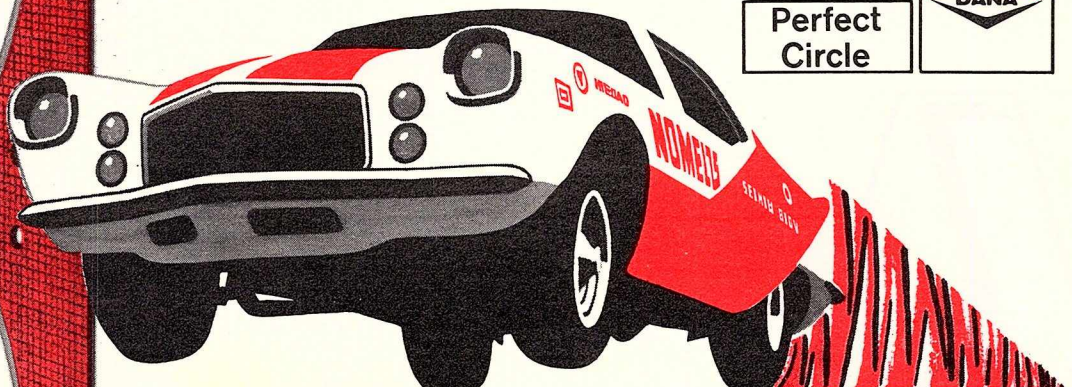
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'65-'71: 396 - 400 - 427 - 454 (except A1 engine)	3805 VC	.029	6.13 cc
'70-'71: 400 8 cyl. small block	3432 VC	.039	8.87 cc
'70-'71: 454 all-aluminum engine	3868 VC	.039	9.99 cc

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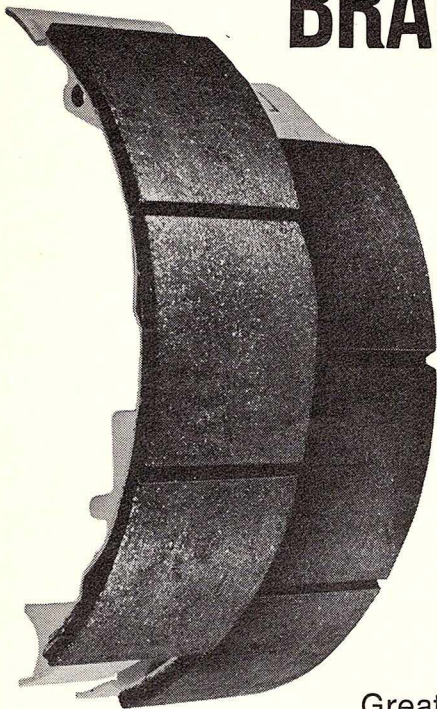
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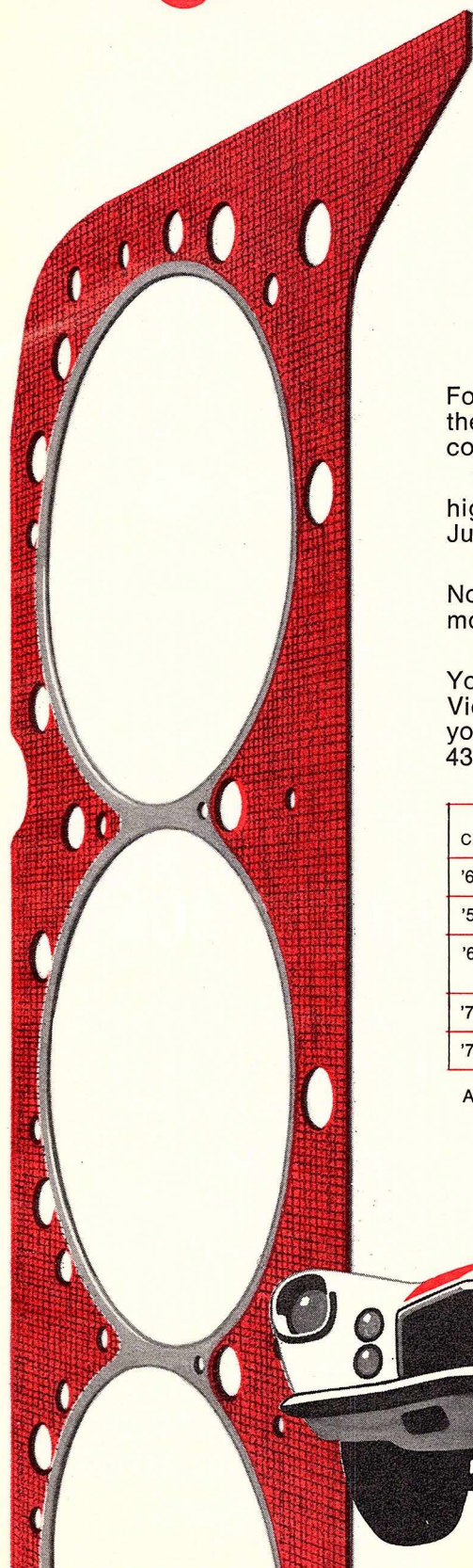
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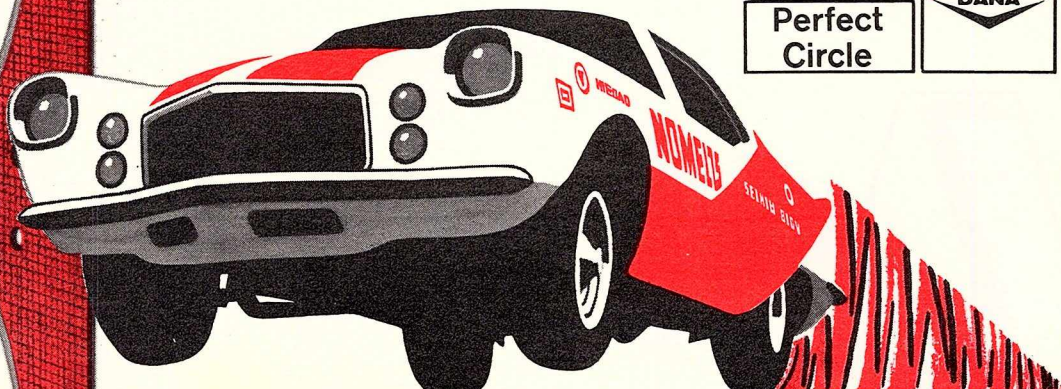
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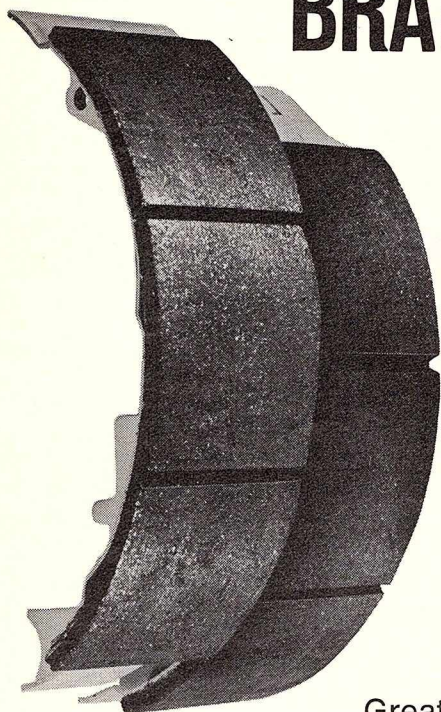
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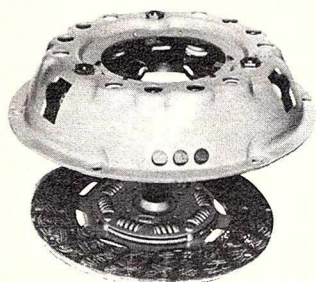
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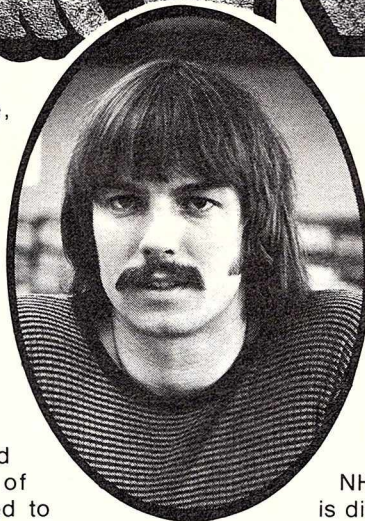


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Point of View



Once upon a time, there were a large number of concerned individuals (including me) who felt that Chrysler's drag racing group was "locked in" with NHRA. That is, they seemed to benefit most from yearly weight/horsepower Stocker factoring and, through extensive and costly development of the 426 hemi, managed to dominate most all the eliminators most of the time. This season, the entire spectrum seems to be reversing itself.

For the next few minutes pretend you are a fly, listening in the room at NHRA headquarters in early December while the rules are being structured for the '72 season. Representatives from Ford, American Motors, GM and Chrysler are there along with the Association's people, trying to get the whole deal together. The biggest hassle seems to arise over the small-block Pro Stock proposal and the fact that in 1973, only current production-line engines will be legal (neatly excluding the 426 hemi). In the meantime, work on the Motown Missile Cuda is being completed, with costs running into the tens of thousands. Finally, the cubic-inch-to-weight-to-minimum-wheelbase suggestions become rules, and the meeting ends. The Chrysler people are disgruntled because the hemi has been outlawed for the following year, but they hope for the best and they're sure the new Missile will be strong enough to meet and beat all comers.

So they leave the meeting with the faith that rule book stipulations regarding suspension, chassis and engine location will remain constant. Word is released to the country's Mopar racers that if they are planning new cars, they may rest assured the rules haven't deviated and everything will be cool as long as they don't build anything more "radical" than the Missile. Their say-so affected at least 20 of the nation's top Mopar Pro racers.

The next scene is at the Winternationals in Pomona, where a familiar Chevy Pro racer cuts down an impressive Mopar field, including the touted Motown car.

According to the rule book, the Chevy was clearly illegal, with a steel tube "birdcage" frame and roll cage. The book says: "FRAME: Must be stock automobile frame for car body used. Properly reinforced stepped frames accepted."

Now you're the fly at NHRA again; but the talk is different. The new phrase is "equality of the manufacturers," roughly translated to mean "the

fans are sick of seeing Chrysler cars win every time and we've got to let minor things (unseen by the average spectator) like completely fabricated frame/rollcages slip through." And what of the hemi rule? At this point, Chrysler is as adamant about sticking with their prize as NHRA is about the mini-engine Pro car. The turn of events left the Chrysler racing people feeling disillusioned and embarrassed at best. What were they to tell their racers, now with partially completed or finished new cars? Having scrapped all small-block development efforts, where would they race in '73? And worst of all, what would they do with the Missile, obsolete *two months* after it was completed?

These Chrysler people are safety-oriented to the point where they feel small-block Colts and Crickets would be too much of a handful for most drivers and the A-body Dusters and Demons would probably be too light to be safe, so those cars aren't even being considered. As for the hemi rule, they're hoping NHRA will make an amendment; if they don't, AHRA and IHRA will accept the hemi cars for '73, but after that the drag racing group's future seems dim. And what of the Missile? It will suffice to say that a rebirth is taking place.

The small Chevy cars will be formidable, as will Don Nicholson's 7.00 pound-per-cube Pinto (and others like it) and Wally Booth's 6.75-pound small-block Gremlin (with dyno hp readings at least comparable to the small Chevrolet engine), but I doubt whether they will dominate the class. They are now in the hemi's league and all three are capable of at least 9.40 e.t.'s. After two years, the racing will finally be even, so I hope NHRA has second thoughts. —Ro McGonegal

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3. New Clutch Linkage Rods. A much-needed companion component to stronger-than-stock pressure plates. They prevent deflection, a cause of 30% of performance clutch problems.

4. New Chevy Cross-Shaft. A much-needed innovation that eliminates interference between the

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THE 1972 ALL-STAR DRAG RACING NOMINEES

With each May comes the promise of summer, warmer weather, and the first of two ballots selecting the CAR CRAFT All-Star Drag Racing Team. This year marks the sixth opportunity for you, our reader, to cast your vote for the most worthy of drag racing's top contenders in each of 25 categories. And, as in the past, the winners which you have selected will be honored at the annual banquet held during the NHRA Nationals at Indianapolis.

Again, some of the finest manufacturers in racing will be on hand to sponsor the All-Star activities and awards. Each of the 25 "top eliminators" will receive All-Star T-shirts from Kool-Fuel; the famous yellow and black CC All-Star decals provided by Develco; windbreakers through Cragar Industries; 1972 All-Star-embellished drinking glasses from Weber; Drag Racing's Oscar, the "CC Tree" sponsored by Coca-Cola; rugged racing jackets from Holley; All-Star blazers through the courtesy of Hurst Performance; elegant wrist watches donated by Schiefer's Clutch Division; the yellow short-sleeved shirts from Schiefer Ring & Pinions; All-Star plaques from Fenton; all-new CAR CRAFT All-Star tennis shoes through the courtesy of the B.F. Goodrich Footwear Division; a handsome pen and pencil set from Fram; a calendar desk set through American Dragway Trophy; beautiful All-Star signet rings from Crane Cams; and participation in the annual "tune-up" cocktail party hosted by Filter Dynamics. In addition, the coveted Ollie Award, presented by our staff to "...the man who has contributed the most to Drag Racing..." was made available by Chrondek Electronics. Lest there be any doubt, this year's All-Star Drag Racing Team will be outfitted with the finest in jewelry and wearing apparel as a reward for their outstanding achievements.

You will notice that some changes have taken place on this year's ballot. What we have attempted to do is consolidate some categories and divide others. Competition Eliminator has received a separation from Modified Eliminator (with which it was previously combined) to better coincide with actual eliminator designations. You will no doubt observe the deletion of Sponsor, Crew Chief and Engine Builder from each of the Sportsman Categories. The reasons were to establish a more equal basis from which the nominees can compete and to make the ballot less confusing. We hope to present a more realistic account of each eliminator's categorical representative and eliminate those cases where one person is responsible for his car's sponsorship, engine building and maintenance.

Much the same has transpired in the Professional Categories. In the cases of Dragster and Funny Car Engine Builders, we have limited the nominees to those who professionally build engines for sale. We feel this better enhances the attitude of the Professional ranks.

How did we arrive at our nominations? By polling each of the sanctioning bodies and their respective division directors, by reviewing the list of national record holders and a nominee's major win record, and by holding endless CC staff meetings to determine the most deserving candidates. In the event we have overlooked one of your favorites, we apologize and provide an additional space in each category for your write-in vote. This is your All-Star ballot; you may vote only once, but please vote. Remember, ballots postmarked later than June 30, 1972, will be ineligible.

1972 ALL-STAR OFFICIAL BALLOT

1971 Drag Racing Season Only

TOP FUEL DRIVER

- 1 ☐ Jeb Allen
- 2 ☐ Vern Anderson
- 3 ☐ Dennis Baca
- 4 ☐ Arnie Behling
- 5 ☐ Richie Broughton
- 6 ☐ Brian Budd
- 7 ☐ Steve Carbone
- 8 ☐ Tom Chastang
- 9 ☐ Dave Chenevert
- 10 ☐ Gary Cochran
- 11 ☐ Don Cook
- 12 ☐ Buddy Cortines
- 13 ☐ Tom Crevasse
- 14 ☐ Jim Davis
- 15 ☐ Preston Davis
- 16 ☐ Larry Dixon
- 17 ☐ Dale Funk
- 18 ☐ Don Garlits
- 19 ☐ Norm Gingrass
- 20 ☐ Gerry Glenn
- 21 ☐ Jim Harnsberger
- 22 ☐ Clayton Harris
- 23 ☐ Larry Hendrickson
- 24 ☐ Tommy Ivo
- 25 ☐ Chris Karamesines
- 26 ☐ Jimmy King
- 27 ☐ Leland Kolb
- 28 ☐ Tom Larkin
- 29 ☐ Ronnie Martin
- 30 ☐ Dick McFarland
- 31 ☐ Don Moody
- 32 ☐ Charlie Moulder
- 33 ☐ Tony Nancy
- 34 ☐ Jim Nicoll
- 35 ☐ Carl Olson
- 36 ☐ Danny Ongais
- 37 ☐ Bennie Osborn
- 38 ☐ Jim Paoli
- 39 ☐ Herm Petersen
- 40 ☐ Don Prudhomme
- 41 ☐ Tom Raley
- 42 ☐ Rick Ramsey
- 43 ☐ Dave Russell
- 44 ☐ Jerry Ruth
- 45 ☐ Kenny Safford
- 46 ☐ Dwight Salisbury
- 47 ☐ Bob Stewart
- 48 ☐ Mike Tarter
- 49 ☐ Dale Thier
- 50 ☐ Ted Thomas
- 51 ☐ Dave Uyebara
- 52 ☐ Jim Walther
- 53 ☐ James Warren
- 54 ☐ John Wiebe
- 55 ☐ Chip Woodall
- 56 ☐

TOP GAS DRAGSTER DRIVER

- 1 ☐ Ron Braun
- 2 ☐ Larry Brown
- 3 ☐ Jim Bucher
- 4 ☐ Don Cain
- 5 ☐ Roy Cipray
- 6 ☐ Dale Funk
- 7 ☐ Dave Grassi
- 8 ☐ Ray Hadford
- 9 ☐ Ernie Hall
- 10 ☐ Mike Kosky
- 11 ☐ Austin Meyers

- 12 ☐ Ray Motes
- 13 ☐ Bill Mullins
- 14 ☐ Mits Ono
- 15 ☐ Rico Paris
- 16 ☐ Walt Rhoades
- 17 ☐ Richie Shott
- 18 ☐ Bill Stephens
- 19 ☐ Walt Stevens
- 20 ☐

DRAGSTER CREW CHIEF

- 1 ☐ Allen Family
- 2 ☐ Robert Anderson
- 3 ☐ Larry Bowers
- 4 ☐ Larry Byrd
- 5 ☐ Bob Creitz
- 6 ☐ John Dearmore
- 7 ☐ Jack Ewell
- 8 ☐ Dan Ferguson
- 9 ☐ Bill Flurer/Pete Lenhoff
- 10 ☐ Robert Frakes
- 11 ☐ Raymond Godman
- 12 ☐ John Hamlin
- 13 ☐ George Hoover
- 14 ☐ Kaiser Brothers
- 15 ☐ John Keeling
- 16 ☐ Mike Kuhl
- 17 ☐ Jim and Allison Lee
- 18 ☐ Tommy Lemons
- 19 ☐ Jack MacKay
- 20 ☐ Don Marshall
- 21 ☐ Dave Metcalf
- 22 ☐ John Peters
- 23 ☐ John Pusich
- 24 ☐ Bill Rice
- 25 ☐ Bill Schultz
- 26 ☐ Gil Shott
- 27 ☐ R.C. Williams
- 28 ☐

DRAGSTER ENGINE BUILDER

- 1 ☐ Keith Black
- 2 ☐ Fred Forkner
- 3 ☐ Don Garlits
- 4 ☐ John Garrison
- 5 ☐ Paul Gomme
- 6 ☐ Ed Pink
- 7 ☐ The Ramchargers
- 8 ☐ Sid Waterman
- 9 ☐

DRAGSTER CHASSIS BUILDER

- 1 ☐ John Buttera
- 2 ☐ Jim Davis
- 3 ☐ Roy Fjastad
- 4 ☐ Kent Fuller
- 5 ☐ Don Garlits
- 6 ☐ Woody Gilmore
- 7 ☐ Frank Huszar (RCE)
- 8 ☐ Rolie Lindblad
- 9 ☐ Logghe Brothers
- 10 ☐ Don Long
- 11 ☐ M & W
- 12 ☐ Moose Schroeder
- 13 ☐ John Shoemaker

- 14 ☐ Bill Stebbins (S&S)
- 15 ☐ S & W
- 16 ☐ Al Swindahl
- 17 ☐ Pete Tropeano
- 18 ☐ Mark Williams
- 19 ☐

DRAGSTER SPONSORS

- 1 ☐ Amalie
- 2 ☐ Coca Cola
- 3 ☐ Donovan Engineering
- 4 ☐ Gopher State Timing Association
- 5 ☐ Gotelli Speed Shop
- 6 ☐ Howard Cams
- 7 ☐ K & K Engineering
- 8 ☐ Kendall
- 9 ☐ Kenner SSP
- 10 ☐ Lee Eliminators
- 11 ☐ Mattel Hot Wheels
- 12 ☐ National Speed Centers
- 13 ☐ New Dimension Homes
- 14 ☐ Pay-N-Pak
- 15 ☐ Pennzoil
- 16 ☐ 7-Up
- 17 ☐ Superior Industries
- 18 ☐ Valvoline
- 19 ☐ Wynns
- 20 ☐

FUNNY CAR DRIVER

- 1 ☐ Ray Alley
- 2 ☐ Larry Arnold
- 3 ☐ Kelly Chadwick
- 4 ☐ Gene Conway
- 5 ☐ John Dekker
- 6 ☐ Jim Dunn
- 7 ☐ Gary Dyer
- 8 ☐ Pat Foster
- 9 ☐ Leroy Goldstein
- 10 ☐ Kenny Goodell
- 11 ☐ Tom Grove
- 12 ☐ Dick Harrell
- 13 ☐ Mart Higganbotham
- 14 ☐ Tom Hoover
- 15 ☐ Leonard Hughes
- 16 ☐ Jake Johnston
- 17 ☐ Connie Kalitta
- 18 ☐ Cecil Lankford
- 19 ☐ Bruce Larson
- 20 ☐ Bill Leavitt
- 21 ☐ Jim Lieberman
- 22 ☐ Roger Lindamood
- 23 ☐ Butch Maas
- 24 ☐ Ed McCulloch
- 25 ☐ Tom McEwen
- 26 ☐ Sam Miller
- 27 ☐ Pat Minick
- 28 ☐ Shirley Muldowney
- 29 ☐ Casey Powell
- 30 ☐ Don Prudhomme
- 31 ☐ Dale Pulde
- 32 ☐ Larry Reyes
- 33 ☐ Jerry Ruth
- 34 ☐ Clare Sanders
- 35 ☐ Don Schumacher
- 36 ☐ Stan Shiroma
- 37 ☐ Rich Siroonian
- 38 ☐ Tom Sneden
- 39 ☐ Mike Snively
- 40 ☐ Gene Snow

- 41 ☐ Richard Tharp
- 42 ☐ Art Ward
- 43 ☐

- 36 ☐ Yamaha
- 37 ☐

FUNNY CAR CREW CHIEF

- 1 ☐ Tim Beebe
- 2 ☐ Paul Candies
- 3 ☐ Phil Goulet
- 4 ☐ Roger Guzman
- 5 ☐ Roland Leong
- 6 ☐ Roy Leslie
- 7 ☐ John Mazmanian
- 8 ☐ Toby Miletics
- 9 ☐ Dave Reitz
- 10 ☐ Phil Roberts
- 11 ☐ Harry Schmidt
- 12 ☐ Bill Taylor
- 13 ☐ Mickey Thompson
- 14 ☐ Art Whipple
- 15 ☐ Dan Wise
- 16 ☐ Ray Zeller
- 17 ☐

FUNNY CAR ENGINE BUILDER

- 1 ☐ Keith Black
- 2 ☐ Fred Forkner
- 3 ☐ Paul Gomme
- 4 ☐ Ed Pink
- 5 ☐ The Ramchargers
- 6 ☐ Sid Waterman
- 7 ☐

FUNNY CAR CHASSIS BUILDER

- 1 ☐ John Buttera
- 2 ☐ Kent Fuller
- 3 ☐ Woody Gilmore
- 4 ☐ Don Hardy
- 5 ☐ Mike Kase
- 6 ☐ Rolie Lindblad
- 7 ☐ Logghe Brothers
- 8 ☐ Don Long
- 9 ☐ M & W
- 10 ☐ Race Car Specialties
- 11 ☐ S & W Chassis
- 12 ☐ Don Tuttle
- 13 ☐ Pete Tropeano
- 14 ☐

FUNNY CAR SPONSOR

- 1 ☐ Amalie
- 2 ☐ Barry Setzer
- 3 ☐ Bob Banning Dodge
- 4 ☐ Briggs Chevy
- 5 ☐ Coca Cola
- 6 ☐ Coletti
- 7 ☐ Cox
- 8 ☐ Custom Body Enterprises
- 9 ☐ Cragar
- 10 ☐ Firestone
- 11 ☐ Goodyear
- 12 ☐ Honest Charley
- 13 ☐ Kendall Oil
- 14 ☐ Kenz & Leslie
- 15 ☐ Lee Eliminators
- 16 ☐ Mac's
- 17 ☐ Manley
- 18 ☐ Mattel
- 19 ☐ Monroe-Max
- 20 ☐ Mr. Norm
- 21 ☐ Pay 'N Pak
- 22 ☐ Pennzoil
- 23 ☐ Peter Paul Candies
- 24 ☐ Ramchargers
- 25 ☐ Reath Automotive
- 26 ☐ Revell
- 27 ☐ RFI
- 28 ☐ So. Cal Plymouth Dealers
- 29 ☐ Superior Industries
- 30 ☐ Sutliff Chevrolet
- 31 ☐ The Guys
- 32 ☐ Valvoline
- 33 ☐ Venolia
- 34 ☐ White Bear Dodge
- 35 ☐ Wynns

PRO STOCK DRIVER

- 1 ☐ Bill Bagshaw
- 2 ☐ Wally Booth
- 3 ☐ Don Carlton
- 4 ☐ Ken Dondero
- 5 ☐ Royce Freeman
- 6 ☐ Mike Fons
- 7 ☐ Wayne Gapp
- 8 ☐ Don Grotheer
- 9 ☐ John Hagen
- 10 ☐ Jim Hayter
- 11 ☐ Bill Ireland
- 12 ☐ Tom Jacobson
- 13 ☐ Bill Jenkins
- 14 ☐ Bob Lambeck
- 15 ☐ Dick Landy
- 16 ☐ Butch Leal
- 17 ☐ Herb McCandless
- 18 ☐ Rich Mirarcki
- 19 ☐ Don Nicholson
- 20 ☐ Hubert Platt
- 21 ☐ John Petrie
- 22 ☐ Carmen Rotonda
- 23 ☐ Joe Satmary
- 24 ☐ Eddie Schartman
- 25 ☐ Shirley Shahan
- 26 ☐ Lee Smith
- 27 ☐ Ronnie Sox
- 28 ☐ Dave Strickler
- 29 ☐ Bill Tanner
- 30 ☐ Ken Van Cleave
- 31 ☐ Arlen Vanke
- 32 ☐ Dave Wren
- 33 ☐ Reid Whisnant
- 34 ☐ Melvin Yow
- 35 ☐ Bobby Yowell
- 36 ☐

PRO STOCK CREW CHIEF

- 1 ☐ Ed Beyer
- 2 ☐ Fred Gibb
- 3 ☐ Mike Landy
- 4 ☐ Buddy Martin
- 5 ☐ Dave McGrane
- 6 ☐ Jack Rousch
- 7 ☐ H.L. Shahan
- 8 ☐ Joe Smith
- 9 ☐ Ted Spehar
- 10 ☐ Billy Stepp
- 11 ☐ Joe Tryson
- 12 ☐

PRO STOCK ENGINE BUILDER

- 1 ☐ Joe Allread
- 2 ☐ Dick Arons
- 3 ☐ Ed Beyer
- 4 ☐ Diamond Racing Engines
- 5 ☐ Paul Frost
- 6 ☐ John Hagen
- 7 ☐ Bill Jenkins
- 8 ☐ Jake King
- 9 ☐ Dick Landy
- 10 ☐ Bo Laws
- 11 ☐ Hubert Platt
- 12 ☐ Joe Satmary
- 13 ☐ Ted Spehar
- 14 ☐ Bill Stiles
- 15 ☐ Arlen Vanke
- 16 ☐ Earl Wade
- 17 ☐ Jack Wheeler
- 18 ☐

PRO STOCK SPONSOR

- 1 ☐ American Motors
- 2 ☐ Bill Blanding
- 3 ☐ Booth-Arons Racing Engines
- 4 ☐ Chrysler of Canada
- 5 ☐ Cragar
- 6 ☐ Dodge
- 7 ☐ Edelbrock
- 8 ☐ Sandy Elliot

(continued on following page)

- 9 ☐ Fenton
- 10 ☐ Ford Drag Teams
- 11 ☐ Paul Harvey Ford
- 12 ☐ Hedman
- 13 ☐ Hooker
- 14 ☐ Jeg's
- 15 ☐ JR Headers
- 16 ☐ Kendall Oil
- 17 ☐ Keystone
- 18 ☐ Lee Eliminators
- 19 ☐ Mr. Gasket
- 20 ☐ Pennzoil
- 21 ☐ Pepsi-Cola
- 22 ☐ Plymouth
- 23 ☐ The Rod Shop
- 24 ☐ 7-Up
- 25 ☐ Valvoline
- 26 ☐ N.T. Yowell Movers
- 27 ☐

COMPETITION DRIVER

- 1 ☐ Bob Amos
- 2 ☐ Brad Anderson
- 3 ☐ Dave Armbruster
- 4 ☐ Willie Borsch
- 5 ☐ Chico Breschini
- 6 ☐ Leroy Chadderton
- 7 ☐ Tom Chambliss
- 8 ☐ Jeg Coughlin
- 9 ☐ Francis Crider
- 10 ☐ Jack Ditmars
- 11 ☐ Leo Dunn
- 12 ☐ Don Enriquez
- 13 ☐ Keith Ferrell
- 14 ☐ Leon Fitzgerald
- 15 ☐ Rich Galli
- 16 ☐ Ben Griffin
- 17 ☐ Harold Gunderson
- 18 ☐ Jerry Gwynn
- 19 ☐ Jack Harris
- 20 ☐ Carl Heischel
- 21 ☐ Manual Herrara
- 22 ☐ Skip Hess
- 23 ☐ Larry Janney
- 24 ☐ Charlie Kruse
- 25 ☐ Joe Law
- 26 ☐ Phil Lukens
- 27 ☐ Jim Mehalik
- 28 ☐ Mike Mitchell
- 29 ☐ George Montgomery
- 30 ☐ Jim Oddy
- 31 ☐ Robert Parmer
- 32 ☐ Jack Pheneger
- 33 ☐ K.S. Pittman
- 34 ☐ Paul Pittman
- 35 ☐ Terry Pringle
- 36 ☐ Ed Prout
- 37 ☐ Roy Rastetter
- 38 ☐ Norm Reis
- 39 ☐ Don Ringer
- 40 ☐ Richard Rosen
- 41 ☐ Charlie Seabrook
- 42 ☐ Ron Scott
- 43 ☐ Kay Sissell
- 44 ☐ Tom "Smoker" Smith
- 45 ☐ Paul Stage
- 46 ☐ Bob Stratman
- 47 ☐ Mike Sullivan
- 48 ☐ Tom Trisch
- 49 ☐ Steve Woods
- 50 ☐ Wilton Zaiser
- 51 ☐

COMPETITION OWNER/SPONSORS

- 1 ☐ AECO
- 2 ☐ Gene Adams
- 3 ☐ Boudakian Brothers
- 4 ☐ Donovan Engineering
- 5 ☐ Eastern Automotive
- 6 ☐ EELCO
- 7 ☐ Galli Brothers
- 8 ☐ Mr. Gasket
- 9 ☐ Gor-Den Automotive
- 10 ☐ Hill Enterprises
- 11 ☐ Howard Cams
- 12 ☐ Jeg's

- 13 ☐ Kendall Oil
- 14 ☐ Lawce Brothers
- 15 ☐ Lockerman Porting Service
- 16 ☐ Malco
- 17 ☐ Mallicoat Brothers
- 18 ☐ Al Marcellus
- 19 ☐ Wayne Mize
- 20 ☐ Pennzoil
- 21 ☐ K.S. Pittman
- 22 ☐ Reed Cams
- 23 ☐ The Rod Shop
- 24 ☐ Shreve Automotive
- 25 ☐ Sissell Automotive
- 26 ☐ Gene Snow
- 27 ☐ Stereo Pak
- 28 ☐ Valvoline
- 29 ☐

MODIFIED DRIVER

- 1 ☐ Harold Babcock
- 2 ☐ Fred Badberg
- 3 ☐ Jerry Bickel
- 4 ☐ Paul Blevins
- 5 ☐ Bob Callahan
- 6 ☐ Carrol Caudle
- 7 ☐ Bobby Cross
- 8 ☐ John Dianna
- 9 ☐ Gene Dunlap
- 10 ☐ Fred Egluff
- 11 ☐ Jabo Elam
- 12 ☐ Keith Ferrell
- 13 ☐ Sam Gianino
- 14 ☐ Al Guerrero
- 15 ☐ Steve Hood
- 16 ☐ Ralph Hope
- 17 ☐ Fred Hurst
- 18 ☐ Al Keys
- 19 ☐ Gary Kimball
- 20 ☐ Carl Kirk
- 21 ☐ Ken Laughton
- 22 ☐ Glenn Lazzar
- 23 ☐ Joe Lemley
- 24 ☐ Bobby Lombardo
- 25 ☐ Butch Luther
- 26 ☐ Harry Luzader
- 27 ☐ Bill Madden
- 28 ☐ Raymond Martin
- 29 ☐ Rich Maskin
- 30 ☐ Dave Mason
- 31 ☐ Jerry Miller
- 32 ☐ Dick Moroso
- 33 ☐ Bud Mullins
- 34 ☐ George Owen
- 35 ☐ Ralph Ridgeway
- 36 ☐ Bob Riffle
- 37 ☐ Joe Rundie
- 38 ☐ Glen Self
- 39 ☐ Buddy Shanklin
- 40 ☐ Dick Shroyer
- 41 ☐ Bruce Sizemore
- 42 ☐ Lee Smith
- 43 ☐ Richard Smith
- 44 ☐ Bill Spears
- 45 ☐ Jim Stevens
- 46 ☐ Fred Teixeira
- 47 ☐ Jim Thompson
- 48 ☐ Butch Thunney
- 49 ☐ Tom Tignanelli
- 50 ☐ Dennis Topletz
- 51 ☐ Mike Valerio
- 52 ☐ Bobby Vaughn
- 53 ☐ Darrell Vittone
- 54 ☐ Joe Williams
- 55 ☐ Joe Williamson
- 56 ☐

MODIFIED OWNER/SPONSOR

- 1 ☐ Booth-Arons
- 2 ☐ Scotto-Blevins
- 3 ☐ Mike Buddo
- 4 ☐ Carroll's Automotive
- 5 ☐ D & J Automotive
- 6 ☐ Deano's Dyno Soars
- 7 ☐ Dodge
- 8 ☐ Duffy's
- 9 ☐ EMPI
- 10 ☐ Edelbrock
- 11 ☐ Gianino Racing Engines

- 12 ☐ Bob Hiner
- 13 ☐ Holley
- 14 ☐ Houchin's Automotive
- 15 ☐ Jeg's
- 16 ☐ Lee Eliminators
- 17 ☐ Motorcraft
- 18 ☐ Norris Cams
- 19 ☐ O'Connor Lincoln Mercury
- 20 ☐ Plymouth
- 21 ☐ The Rod Shop
- 22 ☐ Rydell Chevrolet
- 23 ☐ Schley Brothers
- 24 ☐ Shelby Brothers
- 25 ☐ Fred Teixeira
- 26 ☐ Truppi-Kling
- 27 ☐ Zap Engineering
- 28 ☐

SUPER STOCK DRIVER

- 1 ☐ Ray Allen
- 2 ☐ Bill Allie
- 3 ☐ Al Branham
- 4 ☐ Lee Cameron
- 5 ☐ Greg Charney
- 6 ☐ Jim Clark
- 7 ☐ Tom Crutchfield
- 8 ☐ Lou Downing
- 9 ☐ Terry Earwood
- 10 ☐ John Elliot
- 11 ☐ Carroll Fink
- 12 ☐ Rusty Gillis
- 13 ☐ Bob Glidden
- 14 ☐ Jim Hale
- 15 ☐ Harry Holton
- 16 ☐ Bill Ireland
- 17 ☐ Jim Johnson
- 18 ☐ Judy Lilly
- 19 ☐ Ron Mancini
- 20 ☐ Ken McLellan
- 21 ☐ Billy Morgan
- 22 ☐ Tom Myl
- 23 ☐ Al Olster
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- 22 ☐ Tritak Performance
- 23 ☐ Truppi-Kling Racing Engines
- 24 ☐

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- 2 ☐ Donnie Anderson
- 3 ☐ Ken Andrews
- 4 ☐ John Barkley
- 5 ☐ Johnny Bartlett
- 6 ☐ Bill Beam
- 7 ☐ Keith Berg
- 8 ☐ Dave Boertman
- 9 ☐ Judi Boertman
- 10 ☐ Fred Borchardt
- 11 ☐ Ronnie Broadhead
- 12 ☐ Dave Le Brun
- 13 ☐ John Burkholder
- 14 ☐ Bob Burkitt
- 15 ☐ Richard Charbonneau
- 16 ☐ Mark Coletti
- 17 ☐ Al Corda
- 18 ☐ George Cureton
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- 21 ☐ Tom Elk
- 22 ☐ Pete Fedun
- 23 ☐ Ted Flack
- 24 ☐ Ron Garey
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- 27 ☐ Frank Iaconio
- 28 ☐ Tony Janes
- 29 ☐ Dave Kempton
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- 32 ☐ Dennis Kucera
- 33 ☐ Jim Lamatrice
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- 36 ☐ Bob Matthews
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- 38 ☐ Cal Method
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- 40 ☐ Alan Patterson
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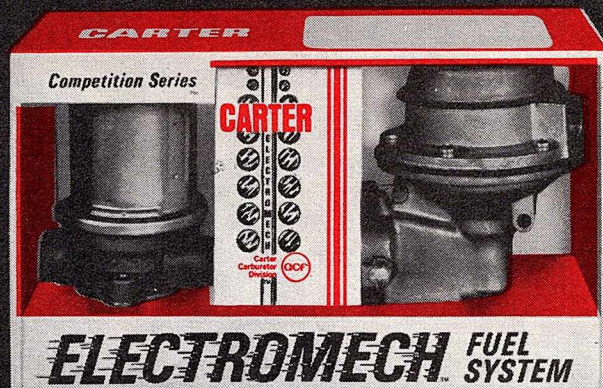
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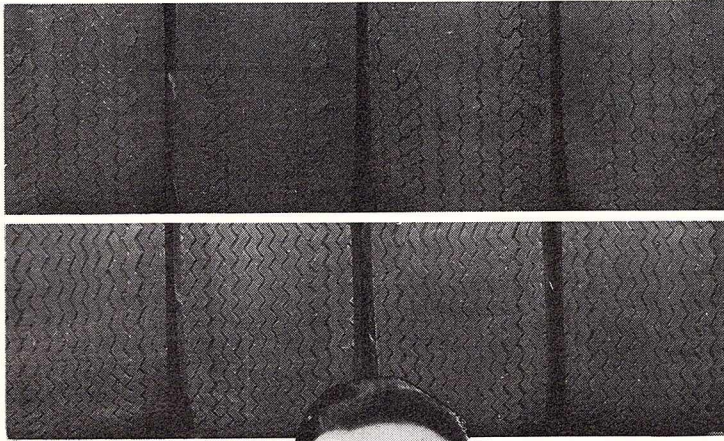
That means the cash you lay out for a set of big, fat wide tires with raised white lettering isn't going to be flushed down the tubes in ten or twelve thousand miles. Your Formula Super Stocks are going to keep working for you longer (80% longer). And that tread is the same interlocking dog-bone pattern you'll find on Europe's fastest, most successful formula racing cars. By the way, until competition figures out how, we make the only street legal, super-skinny Steering Special tire in the business.

You've got a lot invested in your machine and it means a lot to you. Don't blow it. Buy yourself a set of Formula Super Stocks.

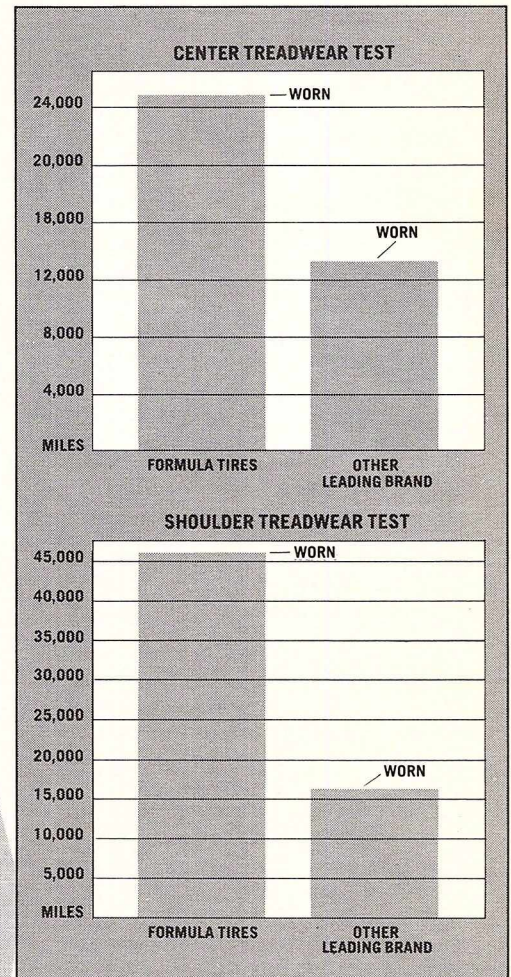
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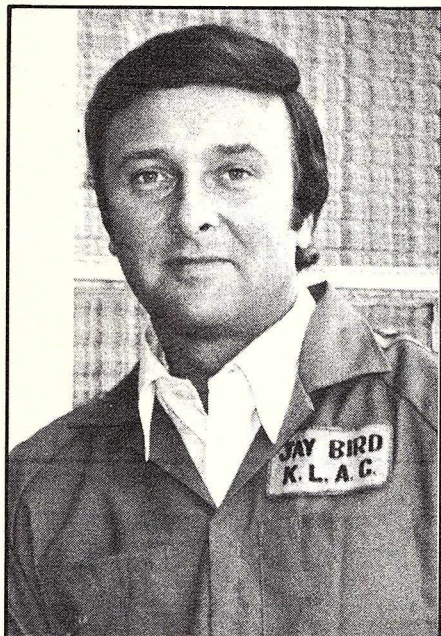


Comparison photos taken after 12,000 miles. The other leading brand high performance tire shows excessive wear. Formula Tires (bottom) still have thousands of miles to go.



*Test results show Formula Tires far outlasting the other leading brand high performance tires in projected center treadwear and projected shoulder treadwear. The Center Treadwear Test shows that while center tire tread on the other tire gave out at an average of 14,116 miles, the center tread on the Formula Super Stocks lasted up to 24,754 miles. The Shoulder Treadwear Test shows that the shoulder tread on the other tire would give out at a projected average of 16,065 miles, while the shoulder tread on the Formula Super Stock would last up to 46,692 miles.

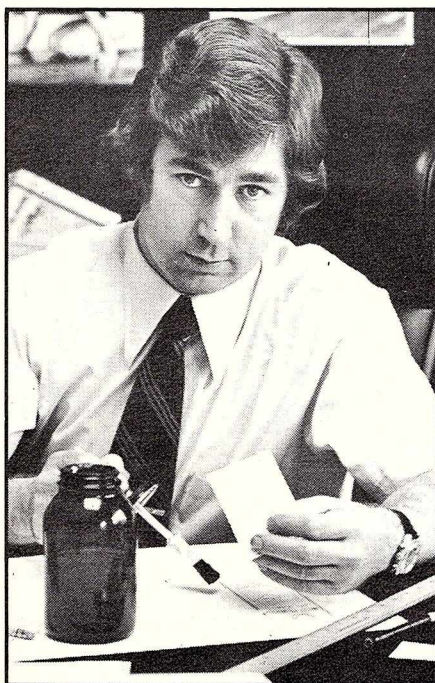
Hi Risers



Jay Lawrence is one of the Los Angeles area's top radio personalities. His show on KLAC is heard by hundreds of thousands of people, and in the past year Lawrence has done much to publicize and broaden the appeal of auto racing in general and drag racing in particular. He's taken a personal interest in our sport and has featured many of the top racers on his program. Jay is often seen at local tracks getting to know racers and doing a little participation himself. His series of mini bike matches against the likes of Don Prudhomme and Tom McEwen have become a feature of many of the larger meets. Lawrence's inclusion of interviews with racing personalities has proven popular with his audience, and during the year he will be on hand at the Nationals and other races throughout the country. His approach to the sport is not as a sports reporter but, rather, on a simple and informal basis that lets his audience get to know something about his racer-guests besides statistics. More support like Jay Lawrence has given is needed throughout the country; maybe some other DJ's will pick up on his example and gain a few points with their listeners.



Don Perry is the man at TRW who has much to do with products relating to the high performance field. As a Product Manager, his job is to stay in touch with customers and satisfy their needs. Anytime TRW introduces a new piston or other performance product, Don Perry has helped it along somewhere in the process of its development. He is a knowledgeable racing enthusiast and can be seen manning the TRW booth at all the major meets. Such far-sighted programs as the TRW safety Caravan were instigated with Perry's approval. As a TRW executive put it, "Don Perry keeps his ear to the ground." This means that he is the man that the giant company relies upon to keep it in touch with the needs of the man on the street, and this could be a low-budget guy with a '55 Chevy or a professional racer. Perry is a likable man who takes his job seriously, but still manages to have fun in the heady environment that it places him in.



Bill Holland, in his capacity as editor of *National Dragster*, is one of the prime sources of information for the serious drag racer. His column often reveals rule changes and trends in the sport long before they are publicized anywhere else. But in addition to his personal outlook as presented in that fine weekly, Holland is responsible, and accountable, for every word and picture that goes into *National Dragster*. When you consider that in most cases the paper is on the stands with detailed coverage of an event that took place only a few days before, you realize the demands and pressure that can be put on a man. Holland has managed to handle the task with seeming ease. Under his tutelage, *National Dragster* has reached an enviable degree of excellence. In spite of his demanding job, the 28-year-old Holland still finds time to run a fuel dragster and stay very active in the sport. He is another one of those rare individuals whose vocation and avocation are barely separable.

What are your cassettes doing at home when you're out driving?

Gathering dust probably. But with a Panasonic stereo cassette player in your car, you can take your favorite tapes along for the ride. Panasonic has players for the glove compartment. Dashboard. Floor. Players that can even be adapted to fit in a boat or a plane.

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Then there's the RS-246. It works under any car's dashboard. American dashboards. Foreign dashboards. Even truck dashboards. Because this model has both positive and negative ground. You get fast forward, rewind and stop buttons. Plus automatic controls. So your cassettes play, stop and eject automatically.

Finally, there's our floor-mounted unit. The RS-248. It has two very special features. Automatic Reverse to play the second side of a tape automatically. Plus a manual reverse button to let you switch sides anyplace on the tape. And the player part of the RS-248 slides out of a console that bolts onto the floor. So when you park your car at night, you can take your cassette player to bed with you.

If you don't want your tapes to stay home by themselves, see these car stereos at your Panasonic dealer. After all, even a cassette gets lonely when it has no one to play with.



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			825 Valvoline
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			831 Crower Cams
			832 Cyclone
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844 Lakewood Industries
847 B & M Automotive
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849 Inglewood Tires
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853 Holley
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THINGS, Bill Jenkins is readying his trusty '71 car with a 490-plus c.i. aluminum motor and removing much weight to run it as a match racer. Jenkins feels that if he can get the proper transmission gear ratio spread, enabling him to shift through the pattern within 6 seconds, the vehicle should run in the 8.80's!

now has a new president. Mr. Tom Heininger, of Webco Industries, accepted the post at the well-known trade association. MIC promotes motorcycle education, training, assists legislators and is representative of more than 90 percent of the motorcycle manufacturers, distributors, and accessory firms involved directly with the industry.

MORE ECONO RAIL STUFF: The United Drag Racers Association has formed a circuit for Econo Rails, comprised of a guaranteed eight-car show. All cars will have full bodies, including a nose-piece, and will race within an area 250-300 miles of Chicago. The rules will basically consist of what CC has outlined, but rear-engine cars will be allowed; a single 4-barrel carb, on-board starter, battery ignition, and unported cylinder heads are musts, and NHRA's general safety rules for the C/D class will be enforced.

SHOCK WAVE—The Latham Manufacturing Company in Branford, Connecticut, has developed a new smog control device dealing heavily with the carburetion system. The unit generates high-energy ultrasonic waves through a special carburetor base-plate by non-electrical means. This sonic energy is applied to the air/fuel mixture in a manner which improves the combustion process within the engine, reducing emissions by decreasing their formation at the point of origin . . . the burning of the gasoline in the cylinder. The gasoline droplets are "shocked" into a microscopically small size by the sonic waves, enhancing combustion efficiency. More on this in a future issue.

The talents of engineer Bertram Tallamy (of Byrd, Tallamy, MacDonald and Lewis of Falls Church, Va.) are steam-heading the construction of a multimillion buck race track at Watkins Glen, N.Y. A full-strip length of tractionized asphalt, careful landscaping, complete underground wiring, seating for 20,000 spectators, pit space for at least 300 racers and excellent lighting facilities should assure Watkins Glen Dragway, Inc., a future NHRA national event; the owners have also planned 15 weekly events plus 20 seasonal grudge races for the amateur competitor.



have decided to combine talents and manufacture Pro Stock Vegas. Quite naturally, Buttera will handle the chassis and car construction while Kirby installs fiber-optic pieces of his own passion. As an offshoot,

Buttera will also be making complete kits necessary for installing V-8 engines in stock Vega chassis. The kit will include headers, mounts for engine and transmission, and possibly narrowed Ford rear axle housings. He is also talking of supplying complete front suspensions for 2-wheel-drive Blazers, to get them closer to the ground.

convention was so successful last year that they're going to do it again. This year it will be held in Troy, Michigan, at the Troy Hilton Inn, June 28-July 1. Those who know expect about 350 Nomads and at least 500 participants. Any Nomad freaks with the slightest bit of interest should contact the National Nomad Club, Box 411, Arvada, Colorado 80002.

WATERMAN seems to be rampant in southern California; during the past months both Ed Pink and Sid Waterman were ripped off to the tune of thousands. Ed's stuff was all late-model hemi parts for fuel motors, while Sid's was a combination of both late and early model parts. Keep an eye out for peddlers, especially those with scads of aluminum rods.

Gregory had tentative plans to follow Whipple & McCulloch through the year's competition and report on the same. The deal's fallen through because Art Whipple has gotten smart and decided to stay closer to home (Clovis, California). McCulloch? He's shining the whole thing on, and is racing as hard as possible.

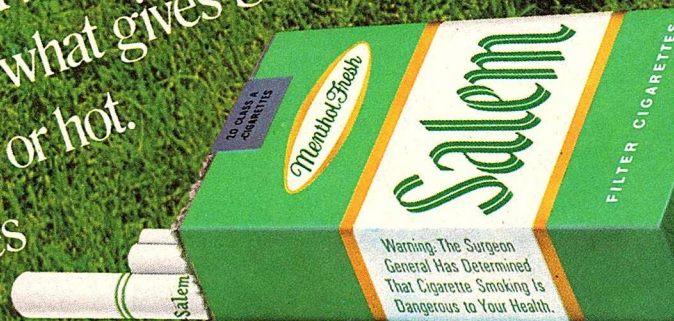
NHRA has chosen Englishtown, N.J.'s Madison Township Raceway Park as the site for the Springnationals (formerly held in Dallas); correspondingly, other informed sources say that York US30 Dragway will once again host the Summernationals (held at Englishtown last year).

elected to S-K's Mechanic's Hall of Fame and were honored at the annual banquet on March 14. Those so deserving are as follows: Jerry Blundy, IMCA; Don Garlits, NHRA; Karl Kainhofer, USAC; Ralph Moody, NASCAR; Ramo Stott, ARCA; and Norris Swain, SCCA.

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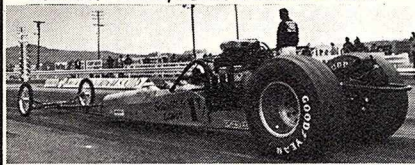
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COMPETITION TESTED COMPONENTS™



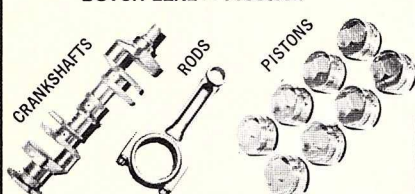
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BEN BROWN ON Funny Cars

After a year and a half of operation, Jacksonville, Florida's Gator Dragway finally connected on the right combination of cars, weather and folks to make their 2nd Annual Winter Championships a veritable "barn burner." This even with Saturday night's program being totally washed out by an out-of-season hurricane!

Gator featured 16 Funnies, two Dragsters and four Pro Stocks. More than 5,000 north Florida-south Georgia/Carolina enthusiasts turned out for the show to really put the track in the black.

Frank Oglesby, the bucks-down racer from Marshall, Ill., was indeed the man of the hour. After a full season of considerable ups and downs, Dame Fortune smiled and Frank's "Quarter Horse" stroked hemi Mustang did everything right to end up the overall winner. On the 1,000-foot course Frank dialed in to a best of 5.69/180.

Jacksonville's facility was favorable to another bucks-down Ill. group, Chicago's Creasy Bros. (Dale & Dean) and their "Tyrant" Ford Torino, also hemi powered, to make it an all-Ford-bodied Funny finale. The brothers Creasy gathered in the runner-up money which was probably the final effort of the Torino's career. An almost-finished RCE/'Cuda is slated to replace the bulky Torino in the near future.

It is no secret that Don Schumacher has put a 1972 master plan into effect that should logically conclude in him being the winningest Funny Car driver of 1972. "Shoe" will personally attend 95% of all association major events. With no less than three Buttera cars completed by mid-April, and nine Pink stroker motors, the odds are that the attendance plus parts will pull it off. Bobby Rowe will seriously campaign one of Schumacher's cars on the match race circuit, allowing the 3rd car to remain as backup, if needed.

What is probably the least important to track operators and fans directly is very important to racing

competitors. What kind of "new" car will whom be running this year? Indirectly, the new cars (meaning new chassis more than new glass body) will affect track operator and fan much more than they might realize. Seldom will an "old" chassis (1970 or earlier) car ever be considered a "killer," in terms of FC performance status.

A rundown of "who's got a 'new' car for '72" will be presented later on. For the present let's talk about the "old" cars. As recently as 1970, the law of supply and demand was tipped in favor of FC owners. Fewer "names" existed than did locations to appear. Chassis design was quite similar to offerings back in 1966. Only the relatively affluent "name" car owners were in the habit of ordering a new car every year. Those that did, were more interested in starting out the new season with fresh fiberglass and tin (aluminum interiors) than they were with fresh tubing.

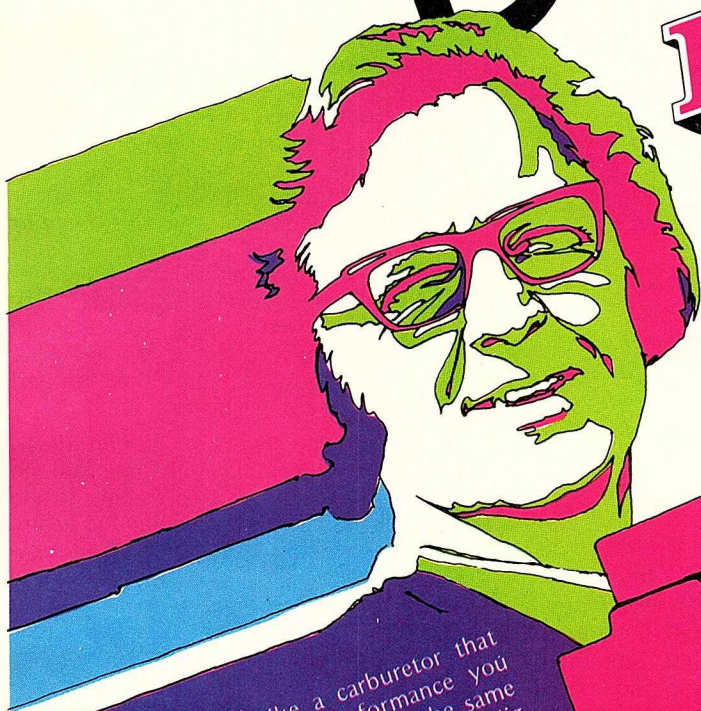
As the '70 racing season waned, chassis design was revolutionized. Although the chassis builders chiefly responsible for the new design couldn't prove the advantages of the new piece, the car owners assumed it would work. The design was narrower, the chassis could accept a narrower glass body. The narrower body meant a slight weight reduction as well as less wind resistance. Combined with the weight and aerodynamics, was the fact that the engine exhaust headers did not have to be removed prior to engine replacement. This factor alone was worth considering. With engines bobbing in and out of chassis on a once a week basis at least, the aligning of balky header flanges after the engine was in the car was eliminated. With the new chassis design, complete engines could now be installed easily within the normal one hour time limit between rounds of most match races.

And so, with the start of the '71 racing season, nearly everyone who was anyone (and could scrape up the necessary funds) went modern

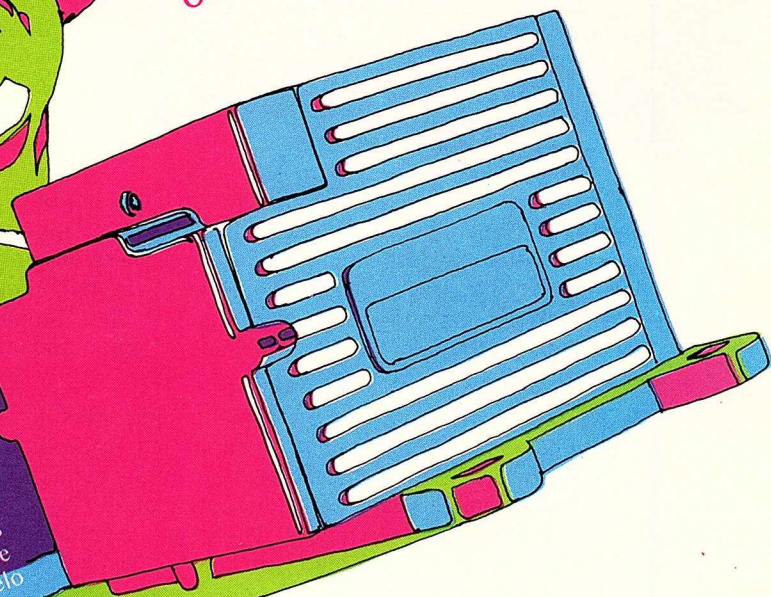
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Now ACCEL has a coil for today's performance machines: the new Super Coil. Engineered to produce all the spark energy your engine needs, the ACCEL Super Coil has the highest voltage output at extreme engine speeds — under actual operating conditions — of any coil now available. The tower is molded from high dielectric strength material and won't carbon track. The functional cooling fins beat the heat. A unique voltage dam prevents tower surface arcing between terminals.

The ACCEL Super Coil belongs on all performance machines. And it's a legal replacement coil for all drag classes.

Send \$1.00 for 1972 ACCEL Catalog, decal, and jacket patch

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BEN BROWN

and ordered a new, narrow-chassied car. Naturally this meant that the used Funny Car market was glutted with "old" style chassied cars bearing for sale signs.

Gullible newcomers, thinking to cash in on the Funny Car craze, bought 'em up left and right, usually for an inflated figure closely approaching what they might have paid for a new-design car.

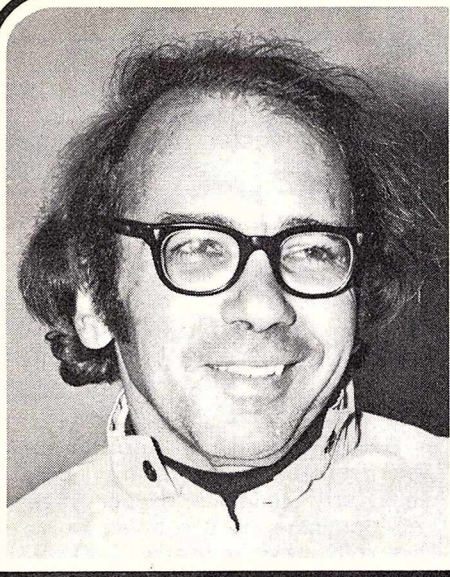
Overall, the scheme backfired on many of the "new car" owners who thought themselves well on the way towards national recognition and stature. For every 50 new cars ordered, there were at least 40 old cars sold to newcomers and the newcomers became a deciding factor in track operators' selections.

Suddenly it's 1971 and the supply of FC's now exceeds the demand and the balance of power was tipped in favor of the track operators. Rather than hire many of the "up and comers," they chose to hire their local "newcomers," as every major track market had its share of local talent who had just purchased someone's last year's model. The newcomers were eager to run—had to run—and would run locally for a goodly amount less than the "up and comers" were willing to travel for.

Buyers and sellers of used, outdated FC's were somewhat startled to read ads in the drag racing trade papers that outright solicited the desire to purchase Funny Cars! The New York National phone began ringing day and night, and in no time eight old clunkers and one spanking new car were purchased. In the former category, the ex-Shirley Muldowney, ex-Connie Kalitta Mustang; King & Marshall's original 'Cuda; Tom McEwen's '70 Hot Wheels Duster; Jim Maybeck's "Screamin' Eagle"; Larry Coleman's "Super Ford" (ex-Foster Bros. "King Cobra"); Petrucelli & Hasket's Camaro (ex-Pete Seaton *Corvair*; and Tony Olszko's "Hemi Royale," to name most of 'em.

In the latter category, there was Terry Hedrick's brand new 1971½ Camaro first viewed Christmas week at a Detroit car show. Hedrick claims to have received \$11,000 for the brand new "Super Shaker" including exclusive rights to his name and services. Hedrick's 1972 position with the UHRA's alcohol-only circuit will be that of hero driver and circuit coordinator. Somehow the thought of Hedrick directing an entire event is almost humorous.

At the same time the FC's were



BILL JENKINS SAYS:

"Grumpy" is back on the winning trail in his new small-block Chevy Vega. He drives to victory with the oil he helped develop three years ago. It's Pennzoil Racing Oil, SAE 20W-40, for street and strip. Ask for it yourself. You're always ahead when you use Pennzoil.

**"They said my little
mouse-motored Vega
couldn't beat the big
hemis at the NHRA
Winternationals,
but we did it...
and we did it
with Pennzoil."**



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Cragar makes Headers for The Snow Man — they make Headers for you too!

Gene Snow is another name on the growing list of racers who have switched to the winning ways of Cragar "Hot Pipes" Headers. Racers, like Don Prudhomme, Phil Castronovo, Tom McEwen, Tony Nancy and Richard Tharp, who demand the maximum for a custom exhaust system. The "Hot Pipes" pure scavenging principle can work for you, too, by adding more performance and horsepower to your engine. Specific engine applications and advanced header construction, with equal length tubing and nonrestrictive bends, are additional Cragar features. Flanges are carefully fitted before they are heliarced and then ground smooth for a leakproof installation. Find out more about the complete line of Cragar Headers including domestic and foreign applications, boats, dragsters and street roadsters, at your speed shop, tire dealer or auto accessories store.

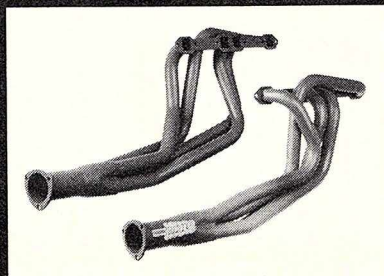
"Pro-Stock Sponsor of the Year"
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All Star Drag Poll

Cragar

HEADERS — WHEELS
SAFETY HELMETS
IGNITIONS



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being purchased, a buyer's rep was making discreet inquiries throughout the Fuel Dragster camp for used, complete 392's. The logical assumption being that the old hemi's are relatively plentiful and cheap, especially cheap. The idea of ancient FC's and ancient engines being able to provide a show of any consequence is difficult to digest. (Of course, I stated publicly that a small-block Vega Pro Stock would be hard pressed to run low 10's!)

Being that all this information is accurate, the prediction from here is that Terry Hedrick's "Super Shaker" will dominate for two reasons: his is the only new, modern, lightweight car in the bunch; and, Hedrick's competitive nature being what it is, he'll have the only stroker motor and *super* supercharger of the lot. Even if it means at his own personal expense. Hedrick doesn't like to lose, even on alcohol, and he's got a scrapyard full of exploded supercharger pieces, shattered fiberglass, broken Lexan windows, and wrinkled interior aluminum to prove it.

With both AHRA and NHRA completing their major "Winter" meets during the first 36 days of '72, the not-so-old adage of "today's winner is tomorrow's non-qualifier" is almost as true as ever. Along with the reverse, too.

Drag racing, FC style, produces its own language. To the uninitiated, such terms as "burns downs," "dialed in" (or dialing it in), "getting their s-(act?) together" are but a few of the more well known, at least to the well-informed. Due to the keenness of present day competition, any one car capturing three major events per season is highly improbable. Those that do manage to win one *invariably* claim that "the motor was never even strained. Could have come right back and laid down another one." This in spite of having dumped parts all over the track at a previous or future major event, sometimes while attempting to qualify.

Recent wordage afforded "drag racing's own motor"—the Donovan 417 aluminum hemi—prompted the thought as to who would have the first such engine in a FC. Dunn & Reath? Maybe. Bill Leavitt? Maybe again. Charlie Proite? Right on. Proite's series of "Tel Star" race cars, both fuel diggers, and in '71 a Dodge Challenger, will include a brand new Dodge Charger for '72. Powerplants currently on hand consist of two aluminum 417's and a trio of iron 392's. As for the framework,

CROWER CAMS & EQUIPMENT COMPANY

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Some cam grinders are content to copy or change existing cam grinds. But not Bruce Crower! In the past six months, Crower has done extensive testing on Mopar Hemis, small block Chevrolets and a 12 cylinder Porsche. The results of these tests are new concepts in cam design. Take the 203 cubic inch Chevrolet at left for example; it's putting out over 800 HP with twin turbochargers. The intake system is based on Crower's famous Direct-Port injection. The cam and kit are right out of stock. In fact, the cam is based on the same engineering concepts that are now used in the MACH VII series for street. Right now, Bruce is "playing" with a pro stock engine based on a 350 Chevrolet, a secret project with a 454 Chev for one of the biggest names in racing and a 320" Mopar hemi. The results of these projects will be turning up on dealer's shelves from coast to coast in the coming months. . . . The success of Crower equipped cars in national competition is no accident, it's the result of constant testing and research combined with a crew of engineers that are ready to talk to the racers and discuss their needs. In fact, we'll even give you a five minute station to station phone call credit when you call the factory to talk about buying a Crower cam. You'll get the same kind of treatment

that Don Garlits, Don Prudhumme, Ed Pink, Mickey Thompson, Gene Snow, Tom McEwen, Bill Leavitt and many other pros receive when they call in. . . . See your Crower dealer or send \$1.00 for the all new catalog.

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Proite hasn't been employed all winter at "Lil' John's Place" for nought. Both Proite and Buttera originated from the Milwaukee suburbs, so it became a logical association.

Besides the aluminum hemi, a judicious assortment of magnesium components could bring "Telstar II" to the starting line some 100 plus pounds lighter than the "elephant motored" competition. Charlie has been known to lean on his equipment (even when he couldn't afford to) and '72 just might be the year to put it all together.

LOST IN THE SHUFFLE DEPARTMENT: Omar "Tentmaker" Carrothers modern Mustang cranking out a 6.7/219 at Orange County and "Flash" Gordon Mineo's new Vega going 6.98 & 6.95 on its only two runs ever at Long Beach. Omar has entered every open meet imaginable in California over the winter months, as the Joplin, Mo., resident is aiding his education, no matter what the cost. He hopes to make it pay on tour. Mineo has not entered any events on a regular basis as any position other than winner is a financial loss.

Also at Pomona, a host of brand new never-before-run cars made their debut. Among these, Shirley "Cha Cha" Muldowney's "Bounty Huntress" Mustang which qualified and then got bumped out; Larry Arnold's "Kingfish" of Supnationals fame, which broke a motor trying; and the Doheny-Fullerton "Trojan Horse," and probably more. All three being super-high-dollar rigs, their '72 tours should go well for them.

Pat Brinegar of Pine Bluff, Ark., has purchased McEwen's '71 Duster and had it done over as a Dodge Demon. Now called the "Arkansas Razor-back" (what else?), young Russ Long of Mission Viejo, Calif., will drive.

Bob Riggall of "Hemi Under Glass" fame will field a Firebird Funny as well as his wheelstander in '72. Dale Emery, formerly of "Pure Hell" AA-/FA reknown, has signed to drive. Name of the Funny? "Hemi Under Glass."

For the true-blue Chevy fans, "pure" Chevrolet FC's are not dead yet, not by a long sight! New, modern, lightweight race cars have recently been acquired by Frank Huff in New Orleans (with substantial assistance from new partner Jack Brown), Dick Bourgeois of Huntington Beach, and Curtis Wasson of St. Louis. Wasson's old, old, old

"Superstitious" Camaro ran numerous 7-teens and 7.2's at 2200 pounds; Huff's old, old "Super Vega" ran equal quantities of 7.0's and 7-teens at 2000 pounds; and Dick's "Doug's Headers" old Camaro had a few 6.9's and a host of low sevens at 1900 pounds. Chadwick and Therwhanger should get some real competition from these three. And are the hemis really superior? Time will tell.

—Ben Brown

Coming Next Month

SEE:

A 427 truck block turn into a 500-incher with stock parts.

GET S-E-T...GO!

Roland Leong and the Mac's Hawaiian are a winning combination on the Funny Car circuit.

Now Mac's has a winning combination for your car. Mac's S-E-T Super Engine Treatment products.

Mac's S-E-T Gasoline Booster keeps the fuel system clean including emission devices, boosting power.

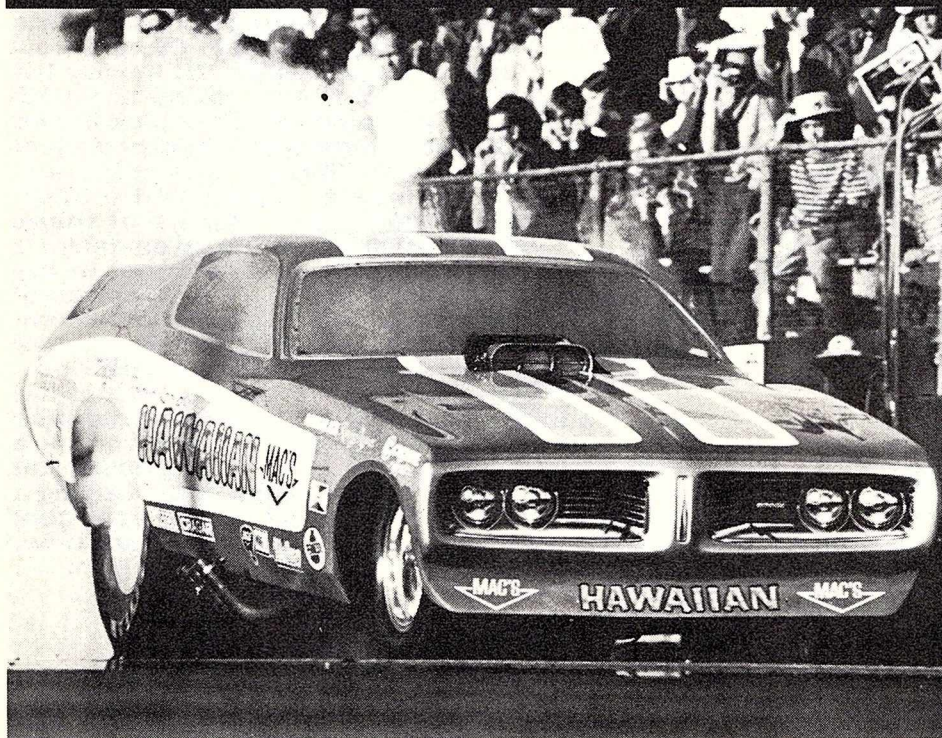
Mac's S-E-T Carburetor Tune Up improves performance as it cleans and lubricates carburetors, automatic chokes and P.C.V. valves.

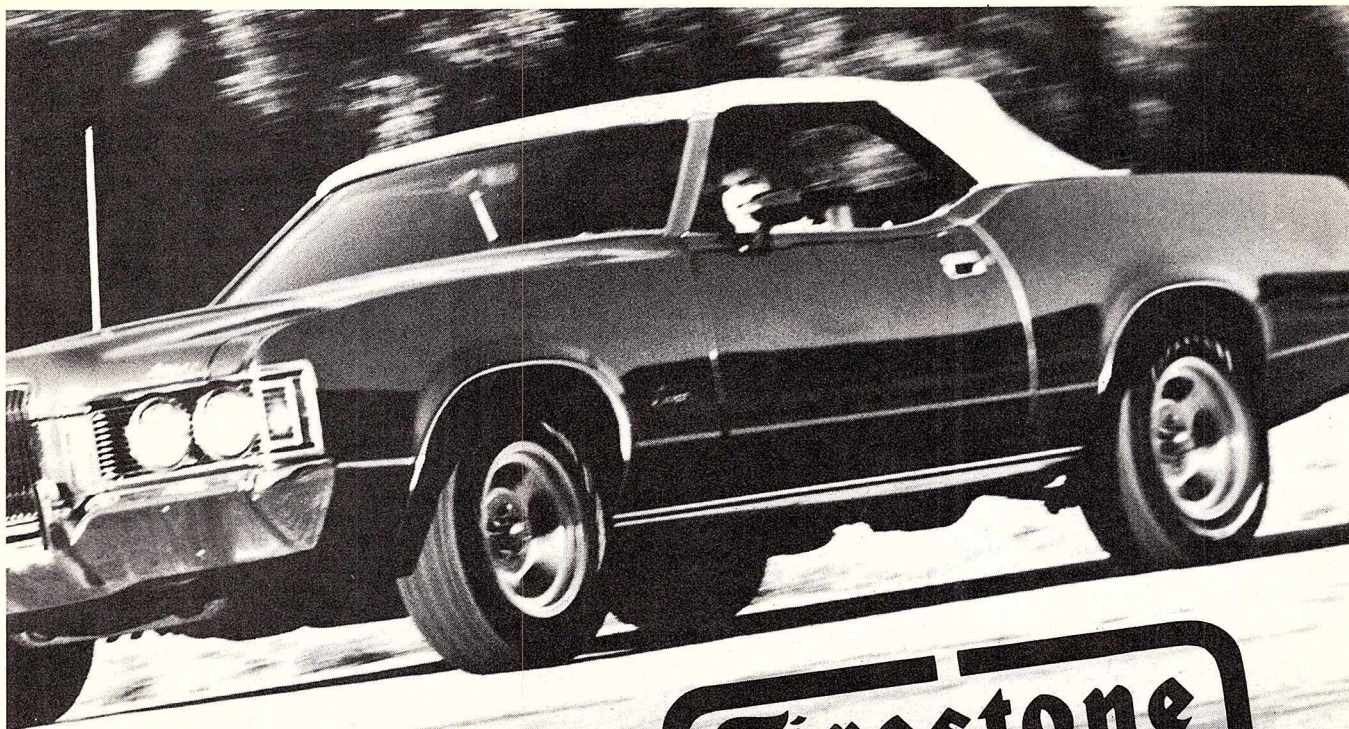
Mac's S-E-T Oil Booster retards wear, rust and corrosion in engines and meets all manufacturers' standards.

Available at service stations and your NAPA or independent jobber.

MAC'S

AUTOMOTIVE CHEMICALS





Firestone
WIDE OVAL 60

A ROAD REPORT BY: **JOE LEONARD**

1971 USAC DRIVING CHAMPION



Joe Leonard probably knows as much about performance tires and tire performance as any man in auto sports today.

That's why we asked him to spend 500 miles behind the wheel of a Cougar XR7 equipped with Firestone's Wide Oval 60 belted tires, the widest tire in Firestone's family of Hard Chargers.

Here are some of Joe's reactions:

"I'll tell you, this Wide Oval 60 is a real performance tire. Some of the wide tires they're selling today *look* like a lot of muscle but they may not deliver the traction and handling that a real performance tire should.

"The Wide Oval 60 is wide enough to put a lot of footprint on the road and keep it on the road.

"Cornering? I found the Wide Oval 60s would really hang in there. And when you get to the edge they don't let loose all at once—even on dirt.

"At freeway speeds the Wide Oval 60 was stable and steady even in some heavy rain I ran into. You

get good wet traction from the wide grooves and the open tread pattern. And when it comes to braking, this tire really hangs on fine when you bring 'em down hard.

"Acceleration I'd say is real good. That Cougar delivers a lot of torque to the rear wheels but the Wide Oval 60 puts plenty of rubber on the ground to absorb it. They ride as well as any tire I've ever owned, too. Nothing harsh about 'em."

Anything else you'd like to know about Firestone Wide Oval 60s you can ask your Firestone Man. The Wide Oval is available in both belted and four-ply nylon cord construction in almost any popular size.

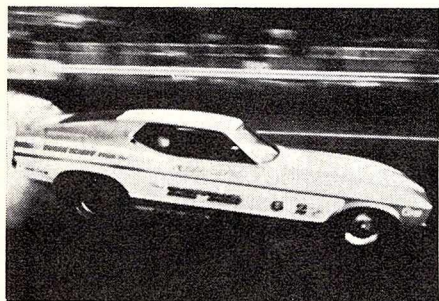


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Record Report

I have been an ardent reader of your magazine for a number of years and I personally consider it the best on the market. One thing I would like to recommend, however, is an understandable, up-to-date report on all the current records, both e.t. and top speed.

What I, and many other readers in the United States and Canada, would like to propose is a monthly account of the official records for NHRA, AHRA and IHRA in each of the more popular classes. Can *CAR CRAFT* do this?

DEAN HOLLEY
Prince George, B.C.,
Canada

Because our magazine works on a three month lead time (meaning we assemble the May issue in February), it would be difficult to accurately keep up with the current records. Even so, who is to determine which of the "popular classes" deserve mention. Your best bet, Dean, would be to resort to each of the sanctioning body's house organs (National Dragster, Drag World, and Drag Review) for correct record information.—Ed.

Strange What?

Although I found the articles in *CAR CRAFT*'s February issue concerning the latest and greatest in custom wheels very informing, the same cannot be construed for Mr. McGonagal's neon and asphalt critique of the "tri-city night life." While I have neither the time nor the money to conduct a detailed survey of Indianapolis or Dayton, I do know that here in the outskirts of Siberia, Indiana, 110 miles southwest of Indy as the crow flies, we do not have an ordinance against cruising our local Frisch's and neither does our local volunteer fire department pump our one street wet to prevent drag racing. However, we do wash and chamois Dad's four-door Comet before 9:00 p.m. in hopes of picking up a little strange.

RAY E. ROOKS
Taylorsville, Indiana

Which is faster, the fire truck, your dad's Comet, or the crow?—Ed

Flatheads Are Good Heads

Being an avid Ford flathead enthusiast, I certainly enjoyed your "Flatheads Forever" article in the January issue. I am interested in joining the United Flathead Racers Association and would appreciate your publishing their address.

PETE GOLIGHTLY
New Albany, Indiana

You may contact Greg Jordan, UFRA, 422 S. Marengo,

Alhambra, California 91803. Is New Albany near Siberia?—Ed.

VDO

I'm really interested in installing gauges in my Volkswagen. I've read your 'Buggin' Out with great interest but haven't been able to find anyplace that handles VDO instrumentation. Could you help?

SGT. WILLIAM LAWRENCE
Pope AFB, N. Carolina

Your letter was one of many similar requests regarding VDO. For further information on their products, contact their American headquarters, 116 Victor Avenue, Detroit, Michigan 48203.—Ed.

Ford Swap Tips

First, I must congratulate you on your Ford coverage, something not always easy to come by. Your recent swap articles have been especially interesting, as I am currently involved in a Boss 302/Maverick and a 351 Cleveland/'65 Mustang conversion. In that vein, I have both questions and suggestions which might interest others.

Concerning engine mounts: would not the 289/271 hi-po mounts be most desirable in any small-block swap? I have had poor luck with other mounts and now consider a torque strap a necessity regardless of the mounts used. I have considered using fabricated solid mounts but don't know if this would be desirable for the street. Any opinion?

Further, in dropping a Cleveland engine into an early Mustang, would headers for a similar engine in a car of later vintage work?

For those who fear metal fatigue or chassis flex under severe street use (bumpy roads and railroad tracks, chuckle), take a tip from the early Shelbys and current Trans-Am cars. An "export brace" (firewall to spring tower, part #C5ZZ-16A-052E) can be employed on all Mustangs (at least to '70, and probably later), Mavericks, Falcons and small Comets with very little modifications. The weight penalty is slight, as is the cost, in relation to increased peace of mind.

Mavericks, due to sheet metal peculiarities, can accommodate much larger axle housings than earlier Mustangs. My selection was out of a '64 Galaxie and incorporates a hefty snubber arrangement which would be quite effective with a little modification. From the same Galaxie came a set of 6-leaf springs, which should improve rear axle control over the stock springs to the point where traction bars should not be needed.

Note, however, that Mavericks will accept

A PERFECT FIT. EVERY TIME.



Let's face it. When installing a set of headers starts costing you time (and money) because of misfitting parts, (or not enough parts) leaking welds, leaking gaskets, it's time to talk to Appliance Industries. We've licked *all* those problems through a systematic method of design, manufacture and thorough field testing of *each* and *every* header design we manufacture. Each tube is constructed of heavy 16 gauge steel (20% thicker than our competitor's), each flange is surface ground, (like a cylinder head) and each flange is independent, for quick, easy and trouble-free installation. So look into Appliance Headers, you'll like what you see.

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RAPPING OFF

these springs; Mustangs use different lengths, which preclude interchanging in this case. While the 31-spline axles are most desirable, they are also relatively rare and expensive new, especially for the big Galaxie housing. I am hoping that the large 28-spline shafts will be strong enough for street use and occasional strip bashing. What do you think?

One last question. The February '70 issue of *HOT ROD* states that the stock Maverick trans mount will match the Boss 302/4-speed combo, whereas you suggest the stock 302 Maverick mount. Any particular reason?

Once again, thanks for your magazine; it's the best.

JIM ARMSTRONG
Lansdale, Pennsylvania

Whew! We definitely feel the information supplied by you will be of assistance to those performing a swap of this nature. To answer your questions: the "289 Special" mount kit is the best choice for motor mounts. Solid mounts will magnify engine noise and vibration. You'll have to have custom headers welded up for the Mustang, but the Maverick can be helped by JR headers with part 5002. The 28-spline axles will be adequate for your limited amount of racing. Finally, since Ford now offers a stock 302 trans mount for the Maverick, why not use it?—Ed.

Ben Brown Backer

I would like to congratulate Ben Brown on his fine articles on Funny Cars. Since its introduction into your magazine, it has helped me follow the never adamant world of the plastic cars. It is to him that I would like to direct

the next question. What is the fastest speed ever attained by a Funny Car officially or otherwise? Keep up the good work and I will continue to await each issue anxiously so I can drool over the journalism of Ben Brown.

TONY GOLDSMITH
Northbrook, Illinois

By the time you read this, Tony, it will have been over a year since Kelly Brown drove Barry Setzer's Vega to over 227 mph during a Funny Car race at OCIR. Ben thanks you.—Ed.

Contented

I have just renewed my subscription to *Car Craft* for two more years, taking advantage of an offer extended by you at an opportune time, as my subscription had just run out.

You stated that you would appreciate any suggestions or ideas to be sent in with the renewal invoice, but I was short on time so I sent this note the next day.

In brief, *CAR CRAFT* has some of the best technical stories and accompanying photos of any magazine around, and as long as you continue informative articles as such, you will keep an avid reader. The magazine has, on the whole, improved tremendously in the last 2½ years.

As a performance enthusiast, I have to state that I don't particularly care for the VW and imported car craze but realize that there are sections of the country that really go for that type of car.

Please continue to be a drag-oriented mag, as I feel that 80%-90% of your readers are more closely related to drag racing than any other segment of the sport.

In closing, please continue the technical articles and also the street freaks—outta sight! As

a garage and speed shop owner who is currently constructing a 466-inch rat-powered '49 Thames pie wagon as a mobile billboard for our shop, let me say I'm really loving those wild street cars, even though I strongly stand against street racing.

BRUCE HOBBS
Austin, Texas

Our next "street freak" issue will be out in a month or two.—Ed.

MoPar Madness

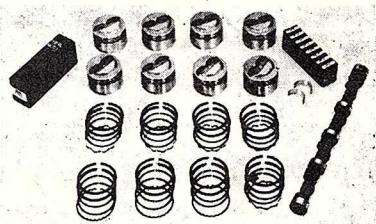
I have had it. All one hears now is Sox & Martin should be banned from drag racing in all competition of any importance. They are criticized, ridiculed, laughed at and run down until it seems to be a pastime in our sport to constantly downgrade them.

Unfortunately, Chrysler Corporation is also dragged into this mess. Why? Why should a company which has done more for the sport than any other be so ill thought of? Take Chrysler out of racing and where would it be? I shudder to think. Consider all, if you can, the breath-taking runs which have been made with Chrysler machinery. It doesn't matter whether it's Funny Car, Top Fuel, Pro or Super Stock, Chrysler products have more than stood the test, and will continue to do so.

The idea of drag racing is to go fast. Pro Stock was born to run heads-up with no handicap, no advantage of any kind. Now it's weigh the MoPars down, slow 'em up, anything to let another brand win Pro Stock. Who wants to pay to see a race where one car is hobbled while another is allowed to run free? Let the fastest car win, whatever it is. I didn't hear any complaints at Indy '71 when Sox and Stepp ran

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Kit includes pistons, in all popular sizes and compressions up to 12:1, Federal Mogul insert and main bearings, Grant rings, Mechanical lifter cam.

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(Cam specs: 489, 453, 526 lifts)

CHEVY
396-427 \$114
(Cam specs: 560-600, 540-560 lifts)

FORD
292-312 \$104
(Cam specs: 450 lift)

FORD
289 \$104
(Cam specs: 476 lift)

FORD
390-427 \$112
(Cam specs: 512, 500 lift)



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292-312 FORD \$149
265-283 CHEVY (cast pistons) \$149
with forged pistons \$179
327 CHEVY (cast pistons) \$187
with forged pistons \$219
427 CHEVY (forged pistons) \$289
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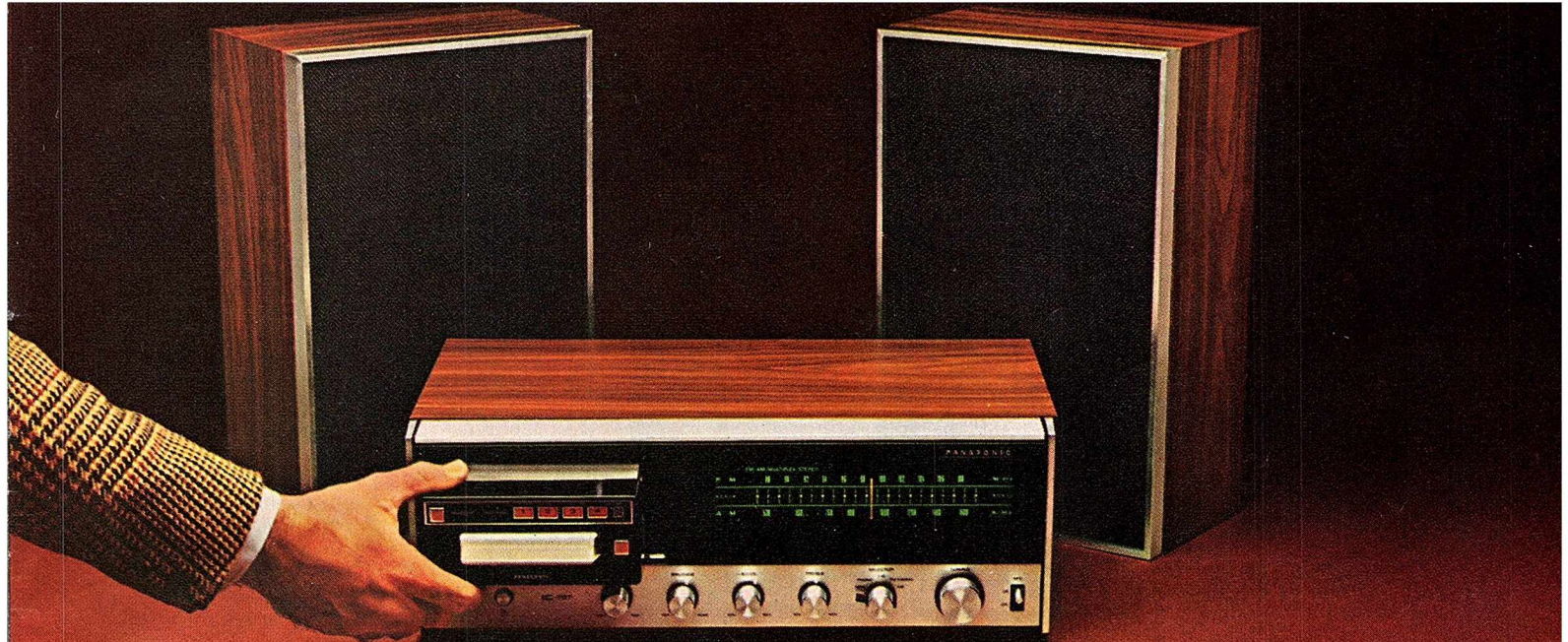
283-302-307-327-350 Chev. \$189.00
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390-427-428 Ford \$198.00
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Plus two hi-fidelity air suspension speakers. So you can hear what the AFC holds.

Add to this, jacks galore. And a blackout face that hides the slide-rule tuning bar when it's not illuminated.

Drive down to your nearest Panasonic dealer. And drive home with the "Westminster," Model RE-8080. From then on, you'll never have to leave another symphony unfinished.

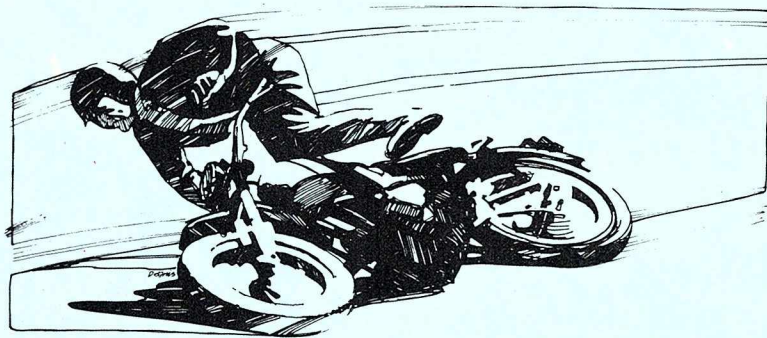
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"Thank you for my life."



I am still being treated at the Veterans hospital for other injuries, such as a broken shoulder and various muscle tears. Without the aid of the protection of the helmet, my head injury would have been the most serious. That big hole could have been in my head instead of the helmet. Seeing riders without helmets, I am tempted to stop and convince them of the necessity of self-preservation."

So writes Mr. Reese Devere from Martinez, Calif. about his personal experience how a Grant helmet provided adequate protection when he needed it!

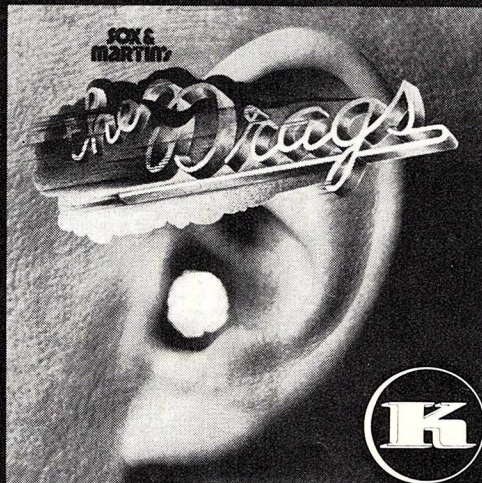
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Ear Blower



Sox & Martin's "The Drags," a 12" double-sided, double-barreled stereo album featuring the ear blowing sounds and "inside" drag commentary by the Pro Stock team of the century! At automotive stores, speed shops and record outlets.

United States: Keystone Processing & Engineering Co., Inc.
1333 South Bon View Ave., Ontario, California 91762.
Canada: Keystone A & A Industries Ltd., 785 Alderbridge Way,
Richmond, B.C., Canada.

RAPPING OFF

fender to fender for 1319 feet. Chevy, Ford and AMC fans all were on their feet. No one cried about both being MoPars. This was racing at its finest. Sox, of course, won in the last foot.

Give Sox & Martin and Chrysler a break. Quit getting down on them. At least try to say something good once in a while. After all, they have dominated Pro Stock for over a year and it all hasn't been luck.

You have a great mag. I buy it from a counter every month and will continue to do so. I especially like Ben Brown and the color photos.

KILEY HALL JR.
Lafayette, Tenn.

Not to take anything away from Chrysler and their racers, but it's the American way to root for the underdog. Moreover, we don't feel that the fans are dead set against Chrysler, but would like to see someone different in the winner's circle, regardless of make. If the same persons continue to dominate the class, more power to them. They must know something the others don't.—Ed.

Oops

I am putting together an injected rat motor for a '64 Chevelle which I plan to run in B/G. In looking through NHRA's rulebook, I find a discrepancy between their engine setback specs and my actual location. The rule states "Engine may be relocated, but not to exceed 10% of the wheelbase as measured from the centerline of the front spindles to the nearest spark plug hole." Does this mean the motor can go back 11.5 inches (total wheelbase is 115) from the front spindle? I sure hope so 'cuz that's where it is.

JIMMY JOHANSEN
West Los Angeles, California

As long as the distance between the spindle centerline and the front spark plug hole does not exceed 11.5 inches, you're O.K. You didn't, however, mention to which point on the engine you were measuring.—Ed.

The A-925 IS Alive

My February issue has just arrived and pictured on page 96 is an old friend, the A-925. Before joining the Navy, my home was near Detroit and for some time I did odd jobs at a local USAC racer's shop.

He had a mysterious connection that provided him with discarded experimental parts from Chrysler engineering. This dohc "wedge" was among some of those parts.

The engine was amazing in many ways: an intake manifold that was super-light (about 4 pounds) with 16 ports and valve covers made from the same material. The block was a wedge, four-bolt-main design but the lifter bores weren't machined. The crankshaft and pistons weren't included, though one would guess by combustion chamber design that they were shaped like a roof while not sharply peaked at the top. While the intake ports were complete, the exhaust ports were siamesed. I am currently using its oil pan on my car.

While at Detroit Dragway one Sunday, I met two Chrysler engineers who claimed to have worked on this engine. They said they were plagued with vibration problems and finally had to shelve the whole experiment. Looking at your article I must disagree, as the heads will not fit the standard Hemi block and are slightly different than the wedge configuration.

ERICK K.F. AHRENS
FPO San Francisco

You mean there really is such a thing? We thought it was just another incredible illustration by Design Maru.—Ed.



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BUSTED

for a WARMED-OVER 283

Steve Spence's timely piece
explains why modifying your engine
may soon be illegal

It is a generally accepted axiom that automobile pollution/emission "reform" is instituted in California; and how California goes, so goes the rest of the nation. Sacramento is the state capital and the place where words sometimes become law. Steve Spence is a newspaper journalist who lives there, so we solicited a layman's viewpoint concerning smog and Section 27156 of the Motor Vehicle Code. What Spence reports is concise and informative and not to be taken lightly.

In the form of a rebuttal, we follow this story with a piece by Hot Rod Industry News editor, Don Prieto. Prieto turned his 283ci clunker into a cleaner-than-1970-specs engine using hot rod aftermarket parts, just to prove it could be done—Ed.

BY STEVE SPENCE ■ The characters to be introduced here are all part of a drama about to be enacted in California. We'll call it: "The Enforcement of Section 27156 as Performed by the California Highway Patrol under the Direction of the Inmates of the Legislature, and Introducing your friendly Air Resources Board."

The drama asks the musical question, "Is it now illegal to hop-up the engine of a street-driven car?" The reviews will be watched across the nation.

Enter G.C. "Gay" Hass, who speaks in the neutral, clinical tones of a long-time state employee. There is no emotional leap between his observation that it is "a nice day" and the disclosure, moments later, that "we're moving toward a confrontation" with the speed equipment boys.

Hass said that because he is Chief of California's Vehicle Emission Control Program in Los Angeles. That's the enforcement arm of the Air Resources Board, the smog watchdog. The confrontation he speaks of concerns a state law: Section 27156 of the Vehicle Code.

And then there is Capt. Bill Fradenburg, a ranking administrative officer with the California Highway Patrol in Sacramento. You catch a tinge of drama in his voice when he declares: "At some point you've got to draw the line. We've got to breathe." The captain is admiring some new equipment he thinks may aid in enforcing Section 27156.

There's Vic Edelbrock, the manufacturer whose last name is handsomely cast into thousands of specialty car manifolds. He gets as hot as one of those manifolds on the subject of legislation that would curtail his industry. He worries about laws that would "take the whole free enterprise system out of the United States." But Edelbrock says he does not oppose Section 27156.

Dressed in ivy-league gray is Pete Schabarum, a Republican state legislator. He introduced no less than 21 bills attacking air pollution during a single session of the legislature. If he is a smog radical, he at least has good reason: He lives in Covina, a section of Los Angeles where smog often makes it difficult to see, breathe and smell. Schabarum is the most-recent author of Section 27156.

Eric Grant. He is an Attorney, a self-described environmentalist and former executive director of the Air Resources Board. But now he is the salaried representative of SEMA—the Specialty Equipment Manufacturers Association. "My hat is still with those concerned with the environment," says Grant, "even though I'm now on the other side of the railroad tracks." He's worried about the way Section 27156 may be interpreted.

One final character. He's the guy behind the counter at your neighborhood speed shop, framed by varieties of custom aftermarket products. "If this thing really gets out of hand, I may well be reduced to selling chrome exhaust tips, mud flaps and "skunky" car deodorizers." As you might suspect, he thinks Section 27156 could possibly stink.

It's been more than a decade since California legislators ordered that some sort of standards be set for permissible emissions from cars. The infant Air Resources Board set standards for the cars of the future and later ordered the first crankcase devices to be installed. Other control systems

followed as the 60's passed.

And now, at last, the state appears ready to begin enforcing the standards it has set. There's only one place to do it—out on the street where the cars are.

The enforcers—they would prefer to be called inspectors—are traffic officers of the California Highway Patrol. They will carry with them into the traffic lanes a set of allowable emissions standards for cars dating back to 1966 (and soon back to 1955). They also will have memorized Section 27156.

Section 27156, first written in 1960 and amended five times until it appeared in its present 1970 form, is titled, "Air Pollution Control Device." Generally, it states that no one shall operate a vehicle without one, and likewise, no one shall remove, alter or disconnect the required device.

But included in the 42-line law are five lines which may determine the future of California performance street cars.

The section prohibits the addition or elimination of equipment "which alters or modifies the *original design or performance* of that engine's pollution control system."

Read it for yourself:

No person shall sell, offer for sale, or advertise any device, apparatus, or mechanism intended for use with, or as part of, any required motor vehicle pollution control device or system which alters or modifies the original design or performance of any such motor vehicle pollution control device or system.

There are two interpretations of the law. First: Any modification of an engine that alters *in any way* the original design or performance of the air pollution device or system is prohibited. Period. Second: Modifications are prohibited where they are responsible for increased auto emission.

The highway patrol, in recent interviews, holds with the first interpretation, although it appears they will issue compliance citations on the basis of the second interpretation, which is emission levels.

The law seeks to guarantee that the hard-fought-for standards won't go down the drain after the car is purchased. It demands that the pollution control systems created within the engine at the factory will not be nullified in the home garage.

On a realistic scale, the emission standards and Section 27156 have not been enforced for simple reasons: The state has not had the technology, the equipment or the manpower to test individual exhaust levels out on the street.

But now, we're told, the initial phase-one equipment to enforce the law has arrived.

By the time you read this, eight "non-dispersive infrared emission analysers" are being set up at CHP roadside checkpoints in Los Angeles, San Diego, San Francisco, Sacramento, and Riverside.

The analysers measure the emission levels of hydrocarbons and carbon monoxide by use of a simple tailpipe probe, lovingly called a "wand." The CHP announced at Thanksgiving that the program would probably be started in January. The pilot program will begin without issuing notices of compliance. The object of the pilot program is to educate the public at first, not to issue notices.

If your car is pumping out more than its fair share of smog, the CHP, in official lingo, would have you return that engine to "factory specifications." Get the message?

For high-performance car owners, the question to be answered, and answered soon, is this: Does a super car, burning super amounts of fuel, give off a corresponding super amount of pollutants? If it does—and there is a super lack of official information on the subject—is the CHP going to require that engines be returned to "factory specifications?"

Answer: "Yes," says Capt. Fradenburg without the slightest hesitation. "We're going to demand that all cars meet the emission standards."

Another field representative is Elliot Burton, a civilian

(continued on page 106)

WITHIN THE LAW

You say emissions laws and aftermarket specialty parts can't ever mix? Don Prieto has proven otherwise, having turned his tired 283 Chevy into a street stromer that passes current smog tests without hassle.

TEXT AND PHOTOS BY DON PRIETO ■ As editor of a trade magazine, *HOT ROD INDUSTRY NEWS*, I felt there was increasing pressure being placed on the industry in the form of legislation to outlaw the replacement of stock parts with high performance equipment.

Under the pretense of adding to the smog problem, governing bodies are attempting to make it impractical, if not illegal, for you to work on your own car. With this in mind, I decided to look into how the smog testing was conducted.

While on a tour of the emission testing lab at Clayton Manufacturing, in L.A., it was brought to light that an engine that was characteristically clean (within accepted standards) was, in fact, a real offender if a spark plug fouled or a valve stuck or the engine misfired in any way. This means that under erratic operating

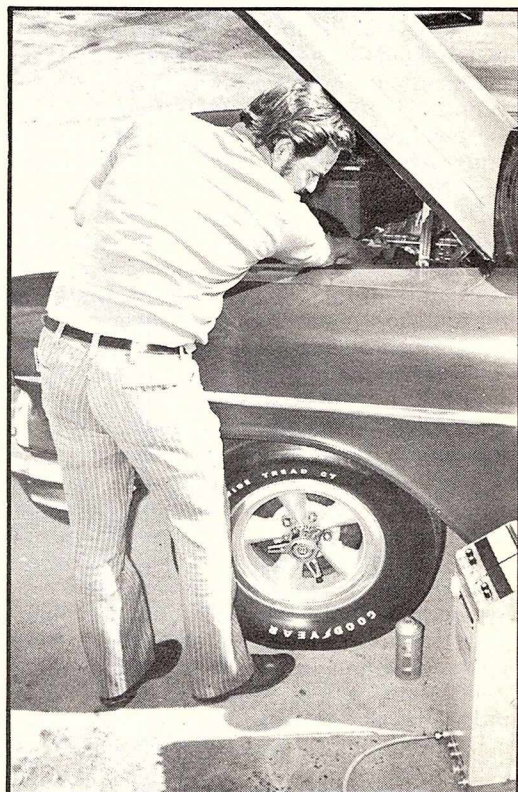
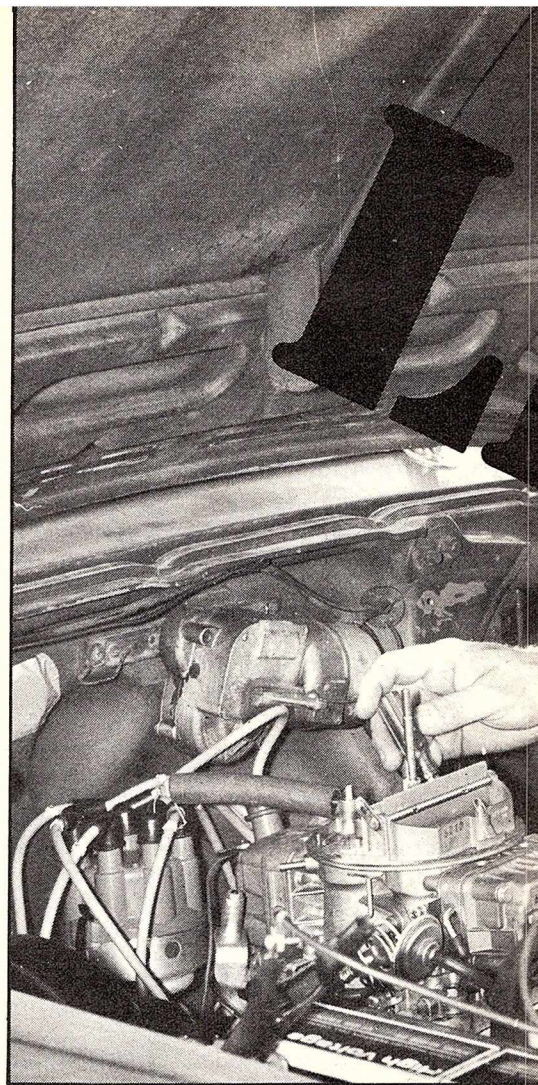
conditions, a new '72 smog controlled engine becomes much more of a polluter than a clean running pre '66 model.

I began to question whether or not the early cars (pre '66) are really all that bad and if the consumers in the high performance world, namely car nuts, are as guilty as some uninformed persons make them out to be. Are the people who are constantly conscious of how their car is running really as guilty as the ones who care very little?

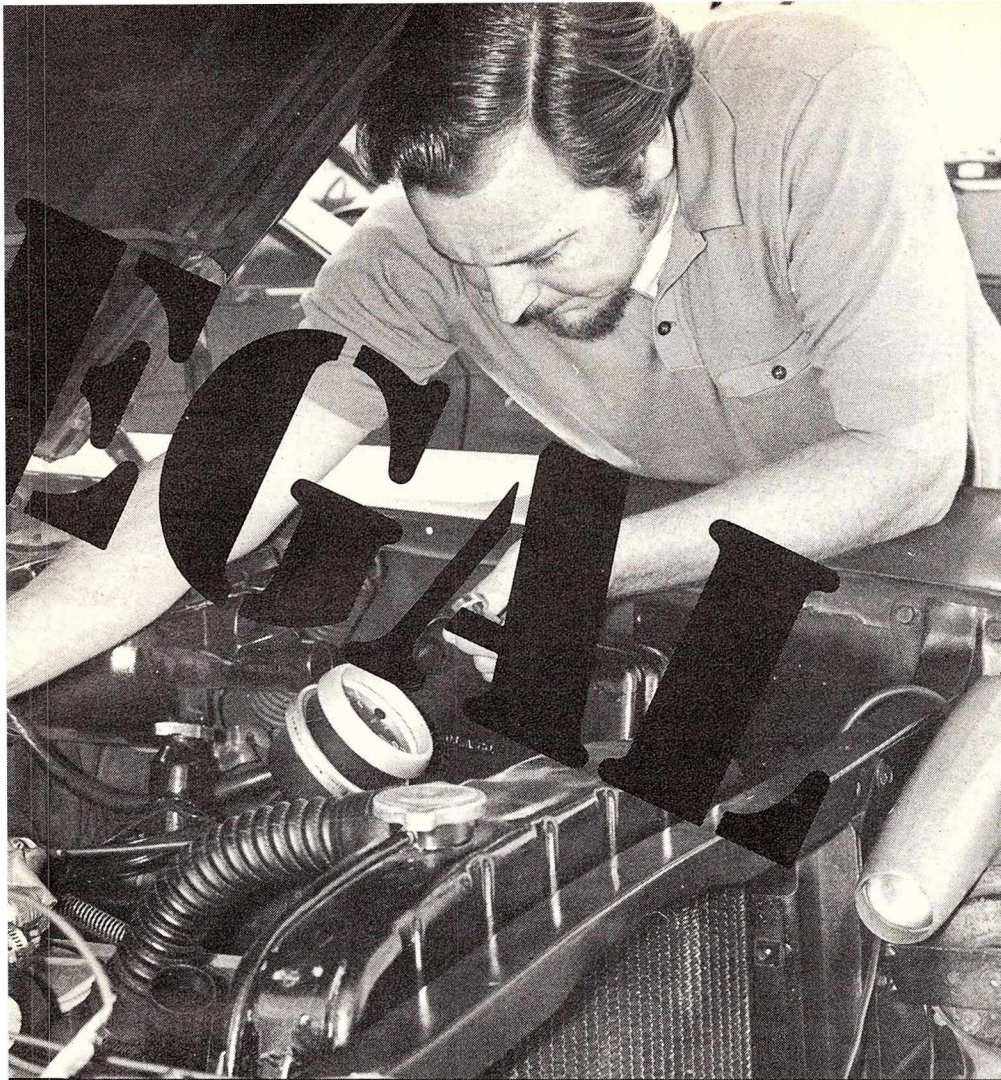
In order to fully understand the emissions problem, I felt that I must first learn the testing procedure and what is tested. The "seven mode" test is a rather complicated one required by the Federal Government. It is primarily a baseline laboratory test to determine whether or not an engine meets certain predetermined specifications with regard to exhaust gas quantities by weight and is much too involved to be used as a method of checking engines already in service to ascertain whether or not they are still within those specs.

The Key Mode Engine Evaluation System, in the words of Clayton engineers, is a prescribed quick-cycle method for efficiently testing vehicles (with spark ignition internal combustion engines) for optimum performance, and includes guidelines as to the type and severity of the sub-standard condition.

In order to understand how the Key Mode System operates, one must be reminded of the basic simplicity of the engine itself. The



After engine rebuild a thorough test was performed to compare results with baseline figures. Carburetion was adjusted to minimum HC and CO at idle.



engine consists of three main systems which work together to provide power. The manufacturer provides coordinated regulation of these systems to produce infinitely variable speed and power operation by simply opening the throttle valve. Therefore, the proper operation of these three basic systems throughout their range will insure smooth and efficient operation.

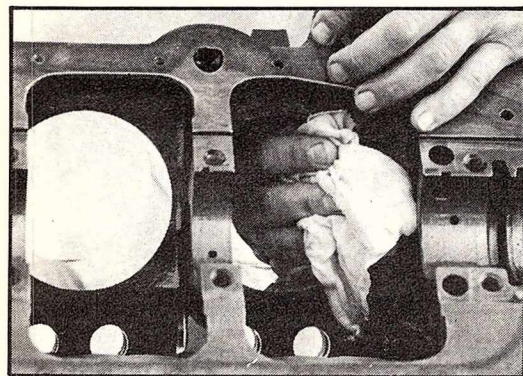
The engine, itself, is a four-cycle reciprocating air pump. The amount of air pumped is dependent on engine speed and the amount of opening of the throttle valve at the air inlet. Thus, the air flow is infinitely variable as the throttle is opened and speed is allowed to increase.

Secondly, the economy, performance and low exhaust emissions are highly dependent on the ability of the fuel system to meter optimum amounts of fuel into the air flow. The prescribed proportion of fuel to air differs throughout the entire engine operating range. (See Fig-1A). Basically, the Fuel to Air Ratio (mixture) is different at Idle, Cruise and Full Throttle. The carburetor or injector system is solely responsible for regulating the discreet ratios of fuel-to-air and does so automatically by responding to the signals of velocity and/or pressure resulting from changes in air flow.

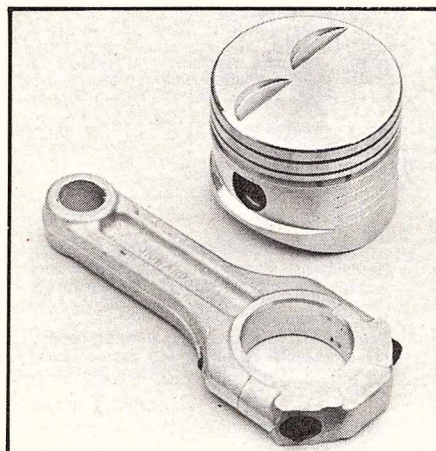
Thirdly, the ignition timing is infinitely variable within its specified range and responds automatically to signals resulting from changes in engine speed and throttle opening. (See Fig. 1B).

As a result of many tests, it has been ascertained that levels of certain components in the exhaust gases change greatly with each engine malfunction. Therefore, high Carbon Monoxide (CO) and Hydrocarbon (HC) levels in the engine's exhaust are indicators of abnormal operation.

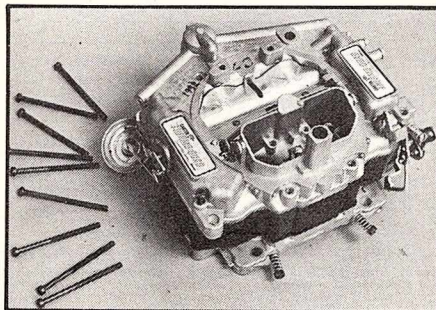
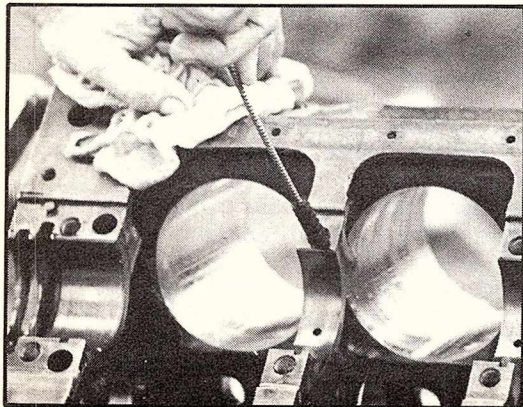
It can be broadly stated that Carbon Monoxide (CO) is a result of incomplete combustion. The fuel and air mixture must be subjected to ignition (combustion) in the engine in order for CO to be formed. Excessive CO will only be present if there was not enough Oxygen (O_2) present to support the complete combustion of the mixture. This can only happen if the carburetor or fuel injection system is metering too much fuel in proportion to the air passing into the engine. An excessively rich Air/Fuel Ratio, and correspondingly poor fuel consumption, can be diagnosed by an abnormally low CO content in the exhaust at full throttle, and will indicate a probable loss of power. This is due to the fact that the Air/Fuel Ratio is normally enriched at full throttle for maximum performance.



The block was machined at a professional shop, then assembled in author's garage. As in any rebuild, care was taken to insure clean assembly.



Arias pistons, Howard's rods are typical quality HP parts available to rebuilders.



Carter TQ and Holley 6210 (shown at top of page) showed similar test results.

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WITHIN THE LAW

Hydrocarbon (HC)-(Gasoline is essentially 100% Hydrocarbon). When the HC content in the exhaust is grossly high, it indicates that the Air/Fuel mixture is escaping from the engine without being subjected to combustion. Common sense dictates that this can only be due to ignition misfire or a leaking exhaust valve. A moderate rise in HC level can result from advanced ignition timing or air/fuel mixture being too lean to consistently support combustion.

Abnormal CO and/or HC content occurs only when engine malfunctions occur. To cause malfunctions to occur, it is necessary to operate the engine as it would be moving the vehicle down the highway.

The monitoring of thousands of in-service vehicles has shown the kinds of engine operating modes that most always cause malfunctions to occur in the three basic engine systems. This became the determining factor in the design of the "Key Mode Cycle." Hence, the name "Key Mode" is not merely a coined name, but actually depicts the fact that the key modes are the ones in which engine malfunctions will most likely occur.

(Figure-1C)

Key Modes: As used in this test

IDLE	750 RPM	0 MPH
LO CRUISE	1500 RPM	35 MPH
HI CRUISE	2100 RPM	50 MPH

The test vehicle was a '57 Chevy Nomad with 83,000 miles on the odometer and a dead stock "never been opened" 283. I considered the engine to be in top tune, such as it was, and so before removing it for rebuilding I ran it through the Clayton Key Mode test cycle for a baseline set of emission figures. The old engine produced:

(Figure-1A)

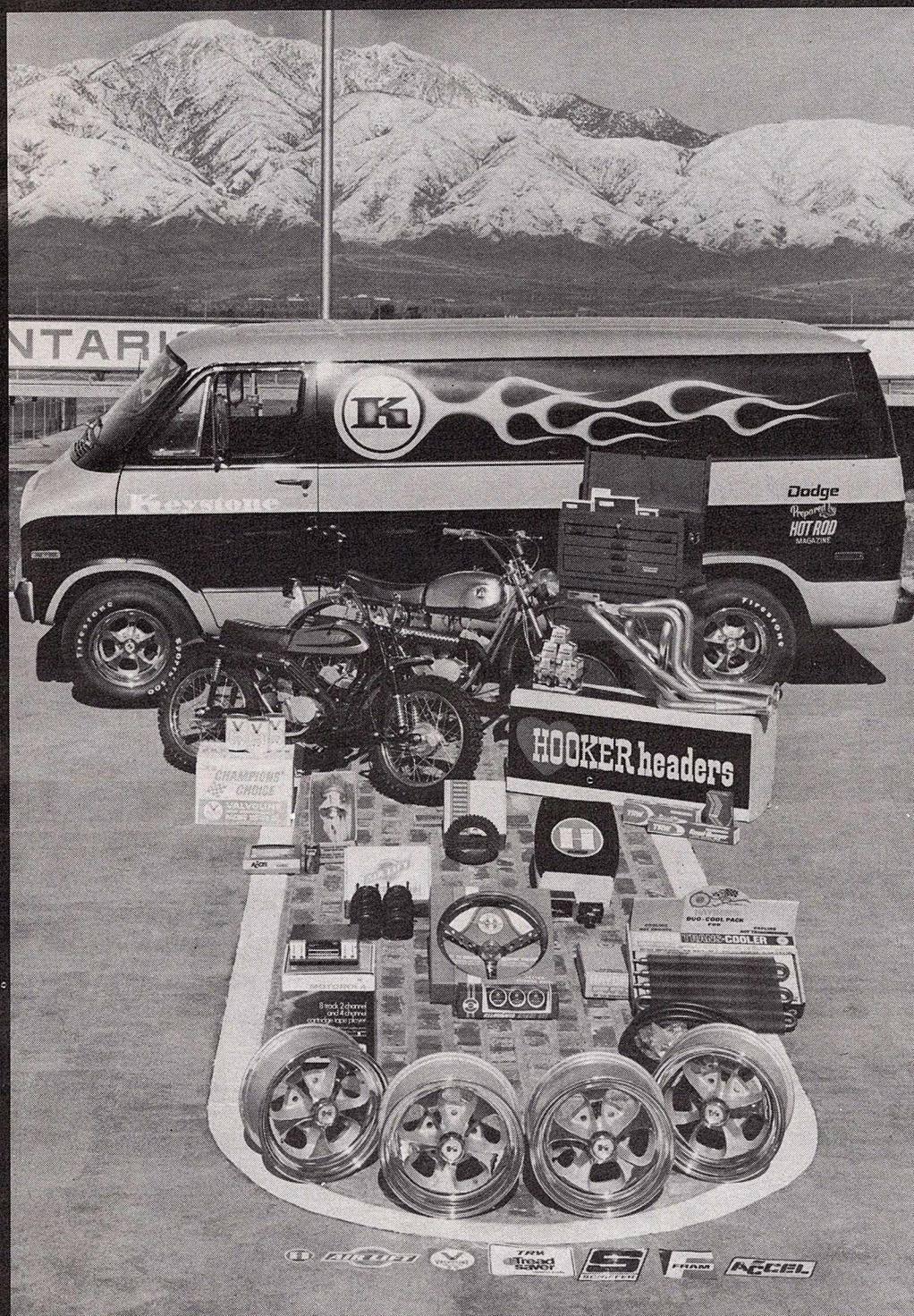
Mode	Idle	Lo Cruise	Hi Cruise
CO%	2.8	1.8	4.7
HC/PPM	730	320	380
NOX PPM*300		1750	1000

*Note: 4° initial ignition timing @ 750 RPM

Since this project was to represent the average street-driven hot rod, I used merchandise that you can buy off the shelf at any good speed shop. I also did all the engine work in my own garage, including removing and replacing, sending out only those pieces that could not be "handled" at home, such as boiling the block, boring the cylinders, balancing the assembly, (handled by Edelbrock), and a valve job (by Valley Head Service). In each case, high performance parts were substituted for all stock items, including Arias forged

(continued on page 123)

FREE



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SUPER GIVEAWAY. 101

prizes, all free from Keystone, world's largest custom wheel manufacturer. **GIANT MULTIPLE 1ST PRIZE:** Winner will be flown free to 1972 NHRA Supnationals at Ontario, Calif...and receive keys to a new customized Dodge Tradesman Van, prepared by the Editors of Hot Rod Magazine. Free equipment and accessories include: Power Brakes, Power Steering, Automatic Transmission; Accel Ignition System; Airlift Air Bags; Custom paint by Goertz; Firestone Sports 500 Tires; Fram Filters; Harmon Digital Tach and Racetronic III; Hayden Trans Cooler Transmission and Oil Coolers; Hooker Headers; Hurst/Schiefer Gears; J.C. Penney Steering Wheel and Instrument Gauges; Keystone 1-Piece Rogue Custom Wheels; TRW Ball Joints and Shock Absorbers; and Valvoline Motor Oil. Plus bonus awards of a Hodaka B Plus Motorcycle; Motorola Sound System; Steen X-100 Mini Motocross, and an S-K Wayne Tools Master Rollaway Tool Kit! 100 additional free prizes, include Keystone custom wheels, racing jackets, Sox & Martin "The Drags" Stereo Albums, T-Shirts, etc.

HERE'S ALL YOU DO:

Pick up your free entry form at your nearest automotive store or speed shop. Entries must be postmarked by midnight, September 30, 1972. Drawing to be held October 16, 1972. Winner need not be present, but must have valid driver's license and be resident of Continental U.S.A. Void where prohibited by law.

Send \$1.00 for big new 1972 Keystone catalog and racing decals: **United States:** Keystone Processing & Engineering Co., Inc., 1333 South Bon View Ave., Ontario, California 91762. **Canada:** Keystone A & A Industries Ltd., 785 Alderbridge Way, Richmond, B.C., Canada.



Webster defines Gremlin as "an ill-tempered little fellow." It got that way due to lack of power. Now things are different. Add a 401, one 4-speed trans, and you have a 2800-pound, low 12-second, tire-smoking . . .

Street Sweeper

TEXT AND PHOTOS BY STEVE COLLISON

■ If you are an American Motors fan or simply someone interested in an outstanding street machine, you're going to love what Randall American, in Mesa, Arizona, has done to the Gremlin. They are currently

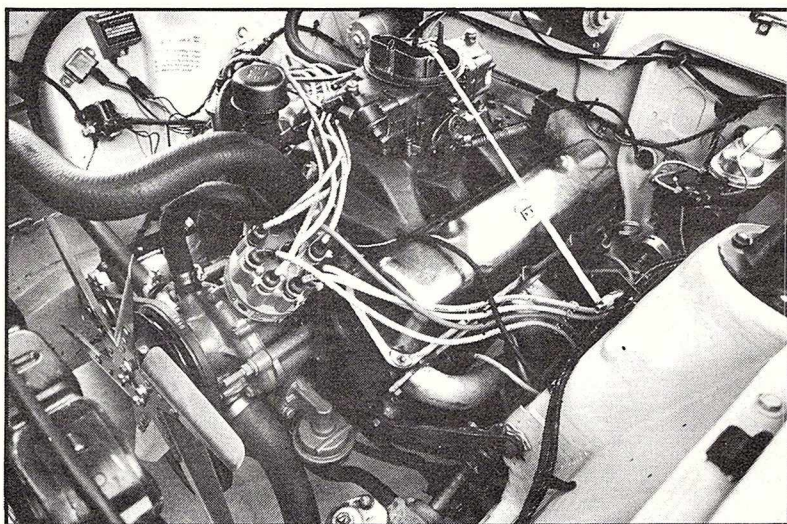
exchanging the stock 304ci powerplants with larger displacement 401's and beefing up the drivetrain to withstand the whim of any customer.

Reminiscent of Chrysler's mid-60's offering of a stripped-down Belvedere with the potent 426 Hemi, you have the

choice of ordering a conservative, multi-optioned, high-g geared freeway cruiser or a nothing-but-a-big-motor-and-a-4-speed racer. Either way, the greatest selling point is not the obvious performance aspect of the Gremlin 401-XR (Randall's designation for the



The Gremlin's short wheelbase with excellent traction capabilities made for a wild ride through first gear. It ran 12.22.



The heart of our Gremlin was 255hp, 401-incher with 8.5 compression. It had help from headers, ignition and cam. Note sensor for AC Racing Dyno.

car) but its surprisingly low cost.

We first became aware of the 401-XR through AHRA's house organ, *DRAG WORLD*, and contacted Grant Randall at his sprawling dealership. He was receptive to our bringing a Gremlin back to Los Angeles for a general evaluation and promised to have a car ready by AHRA's Winter Nationals. In fact, there were three Gremlins flying the Randall banner at Beeline, with Grant's son Mike handling the fleetest of the trio, a 304 Gremlin X running in GT-2. When Mike offered a demonstration of the car's capabilities on the return road, I jumped in with a show-me attitude. He did and I couldn't wait to get my hands on one of the 401's. Although the small-block Gremlin had received extensive engine changes, it clicked off times in the high elevens with speeds approaching 115 mph. It was hard to believe a little "Rambler" could run so hard.

After the race, we met at the agency where I was to take delivery of a recently built 401-XR. Randall's Performance Director, Ed Beard, explained that since the 401 and 304 were physically identical, the engine swaps were a cinch. The larger block was of '72 vintage with 8.5:1 compression, a factory horsepower rating of 255 and a T-10 4-speed from Borg Warner. Complementing a stock short-block assembled by Randall do-it-all man Tom Iverson, were an Edelbrock aluminum intake manifold, Holley 600 cfm 4-bbl, and an Iskenderian #310 hydraulic camshaft. The car also featured a rear pinion snubber designed by Beard, 4.44:1 American Motors gears, and 1½-inch tubular headers. While Ed assured us the car was definitely streetable and not a race car, Randall would reportedly assemble an all-out racer as well.

To add credence to the car's dependability, I would drive it back to LA in the same trim (plus mufflers) as it had

been at Beeline. Once home, we would change plugs and oil and drive the car to Lions Drag Strip for flogging. The ride home was uneventful, with the 401 Gremlin averaging just under 10 miles per gallon of premium fuel. At the office, each member of the staff took his turn at the wheel and came away impressed but a little shaky as the 96-inch wheelbase, coupled with street tires and low gears, made the car about as squirrely as anything we've ever driven. It was sort of like a built-in safety feature. If you nailed the car in anything but high gear, the tires would spin unmercifully and the car would get out of shape. So around town, we just cruised, feeling content to let the engine's rumbling exhaust bewilder those around us. At gas stations and drive-ins, the kids would crowd around our Gremlin wanting to know what kind of Chevy engine it had. When we informed them of its true origin, they couldn't identify its seemingly healthy attitude with American Motors. What many people fail to realize is AM's rather unheralded success in Trans-Am racing and its effect on future drag efforts. Their pieces are actually reliable, needing only product exposure to situate American Motors among performance-oriented consumers' list of prospective purchases.

Our first outing at Lions was a little disappointing. Not so much from the performance aspect, but because we shelled the rearend (due to a Funny Car-like bleach burnout and excessive traction). Seven passes were completed before the axle was twisted, the best being a 12.40 at 114.79. We ran no less than 8½ psi in our 8.15 x 15 Goodyears, launched the car at a conservative 5000 rpm and shifted at 6500. The one chronic problem that was to plague the remainder of our testing with the Gremlin was the transmission. It would not shift under full throttle. The fault was diagnosed as excessive engine torque provided by the 401 at high rpm. The trans would shift fine at 4000 rpm but any attempt over 6000 was hopeless.

We gave Ed Beard a call, told him of our problems, and he shipped us a complete housing with axles. Now all we needed was someone familiar with AM performance to help us put the Gremlin back together. Such a person was located, and with impressive credentials. Jim Johnson is currently NHRA's Division 7 Super Stock champion who campaigns a SS/C AMX out of Dick Steele's Reseda-based American Motors dealership. Jim's extensive background provided us with the help we needed to get the car back together in a minimum of time. He added some of his own tricks, as well as his spare 4-speed, to the Gremlin and got us back to Lions within a week.

The car received a fresh set of

Champion N9Y plugs and five quarts of Kendall GT-1 30W racing oil filtered by Fram's PH-11 filter. The 600 cfm carb was replaced with an 850 cfm center-squirter containing Holley jets #76 in the primaries and #80's in the secondaries. The Accel distributor was set for a total of 38 degrees at 3000 rpm and an engine torque strap connected the block and a frame rail. In hopes of curing the shifting malady, Hurst supplied us with a Super Shifter and Schiefer chipped in a Rev-Lock diaphragm clutch unit. One final addition was an AC Industries Torque-meter connected to the carburetor to measure engine movement. This unit enabled us to shift the car at maximum engine torque output, not necessarily at maximum rpm. Basically, the logic behind the meter is that an engine is constantly shifting on its motor mounts or, in our case, straining against the torque strap. As the engine passes its peak output point, a needle on the AC portable dyno-meter will begin to decline. When this occurs, it's time to shift. We noticed a slight gain in both e.t. and mph by using this method instead of the mundane monitoring characteristic of shifting at a predetermined engine rpm by a tachometer.

Our second and last outing at Lions was again somewhat unsatisfactory, as we had hoped the 401-XR would easily dip into the high elevens with the added benefits of the clutch, transmission, and shifter. But the same problems still plagued us. We were unable to power-shift the car due to excessive engine movement. Possibly another torque strap on the other side of the engine would have helped, but we hadn't the time. The car did, however, respond to the warming-over by Johnson and ran consistently in the 12.20's with a best of 12.22 at 115.97 mph. A trip to the scales with half of the Gremlin's 21-gallon tank full resulted in a reading of just 2820 pounds. This was another reason for the car's inherent sideways attitude under acceleration. But it was perhaps the most enjoyable car we've ever raced because we constantly had to steer the car as well as shift it, regardless of how slow the gear changing process was.

The price? Randall promises all pure stock 401-XR Gremlins will run 13.90's at 105-107 mph, depending upon transmission. For \$2995, one can get a 401 Gremlin with a 3-speed transmission. Torque-flite cars run \$200 more and an all-out luxury version would still be under \$4000. Insurance? As we mentioned earlier, the 304 and 401 powerplants were physically identical. And not too many agents can tell the difference.

If you ever get to the Phoenix area, do yourself a favor and stop in at Randall's for a test drive. You won't believe it.



Inglewood G60-14 Positraction tires on pretty 14 x 7-inch E-T wheels helped hold 401-XR on street.



INSIDE GRUMPY'S TOY

A detailed look inside the small-block Chevy that won Pro Stock at Pomona

TEXT AND PHOTOS BY DON GREEN ■

Bill Jenkins is a rather quiet man. He's bent toward doing things rather than talking about them. And anyone who is into drag racing at all knows about the things he's done. Especially recently.

While nearly everyone else was debating the feasibility of small-block-powered mini-cars in the hemi-dominated Pro Stock class, Jenkins and his crew were hard at work building a 327-powered Vega Coupe. Barely a week after the car was finished, Jenkins and the Vega were the 1972 Winternationals Pro Stock champions.

We talked to Jenkins the day after his Pomona win. The 327 was

already out of the Vega to be replaced with a spare engine for an upcoming match race in the South. Like everyone else, we were interested to find out what was inside that little 327 that could make his car go 142 mph in 9.6 seconds.

To make a long story short, we asked the Grump if we could do a story on the engine that was in the car at Pomona. He said yes. We could disassemble parts of the short block, photograph, tinker and measure, and he would answer our questions. Jenkins' policy on questions is, ask a direct question, you get a direct answer. If you started by asking, "Why does your engine make so much horsepower?" you'd probably be ignored. But if you're interested in the valves and you asked, "Is a .030-inch seat on the intake valve too narrow?" you'd get an answer. And if he felt he didn't have the proper personal experience to answer your question,

that's what he would tell you.

So the information given here is a result of the questions we asked. If something is missing, it's that we weren't aware enough to ask the question. Occasionally, though very seldom, Jenkins would tell us that he would rather not answer a particular question. Bill is a Chevy man. He enjoys seeing Chevys run well, and he's willing to help other people with their Chevys. But he's also a professional racer and businessman, and, rightfully, a few of the things he's worked hard to learn are going to remain his alone for now (though he doesn't mind us pointing out the areas he would rather not discuss so you'll know which engine pieces benefit from a little extra bit of trickery beyond what we're printing here). This is the engine that won Pro Stock at the 1972 NHRA Winternationals:

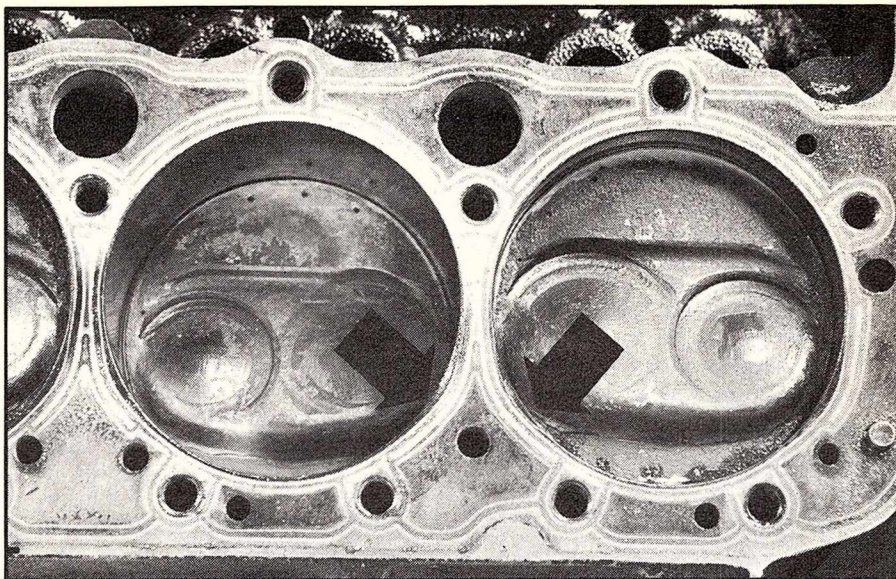
The cast-iron cylinder block is the four-bolt main variety used for the

302 and 350 cubic-inch engines (the larger bore 400 blocks are not legal for Pro Stock, since they were originally used for engines having a displacement of more than 366 cubic inches). Jenkins prefers a used, run-in block whenever possible, since the casting will have already done most of its shifting and relaxing, and the newly machined surfaces will be less likely to change shape or relationship to one another. Though he prefers a block with the small-diameter main bearing journals because of the lower bearing speed, he has to use what is available at the time. For the Pomona engine, that meant using a large journal block that came out of the truck that carries his race cars. That particular block was well run-in, having many more than 100,000 miles on it. Still, it offered the one advantage of already having four-bolt main caps (small-journal blocks are available only with two-bolt mains, so Bill must install special Summers Bros. four-bolt main caps on all small-journal blocks he uses).

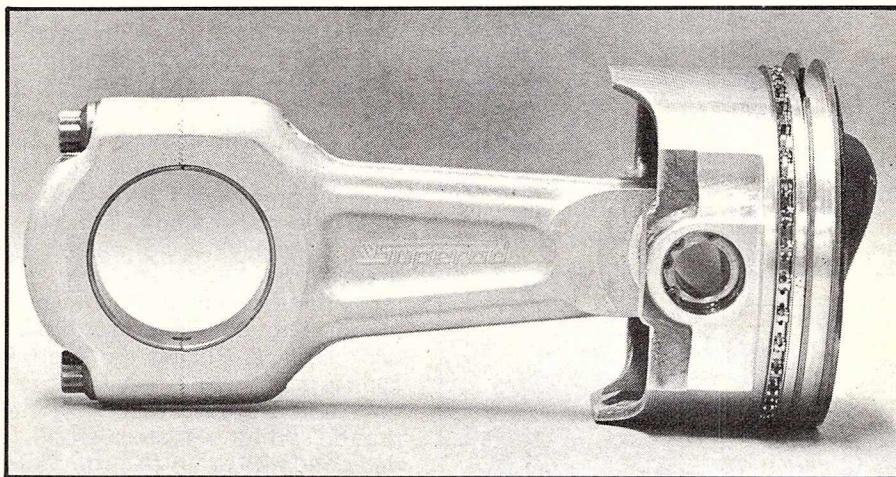
If a block has relatively few miles on it and the cylinders are not badly worn, Jenkins cleans the cylinders with a minimal bore of .005-inch. Blocks that are more badly worn are bored .020-inch oversize. The Pomona/truck block, including boring and honing for piston fit, was .024-inch oversize.

After boring, the cylinders were prepared with a 280 grit Sunnen stone, then finished with a 400 grit stone to give a piston-to-wall clearance of .008-.0085-inch. All honing was done by hand, not machine, using Sunnen's filtered abrasive oil and a 1½-inch-thick steel honing plate. The plate bolts to the block in place of a cylinder head and, when fully torqued in place, simulates the distortions that are created in the block's cylinder walls by an actual head torqued on a completed engine. Obviously, the 1½-inch-thick plate must have machined or flame-cut holes corresponding to the cylinder bores through which the hone is operated. Jenkins feels that, ideally, an engine should be run and honed two or three times before all distortions are removed from the cylinder walls. Small notches were hand-ground at the tops of the cylinder bores, not for valve clearance, but to improve gas flow (see photo).

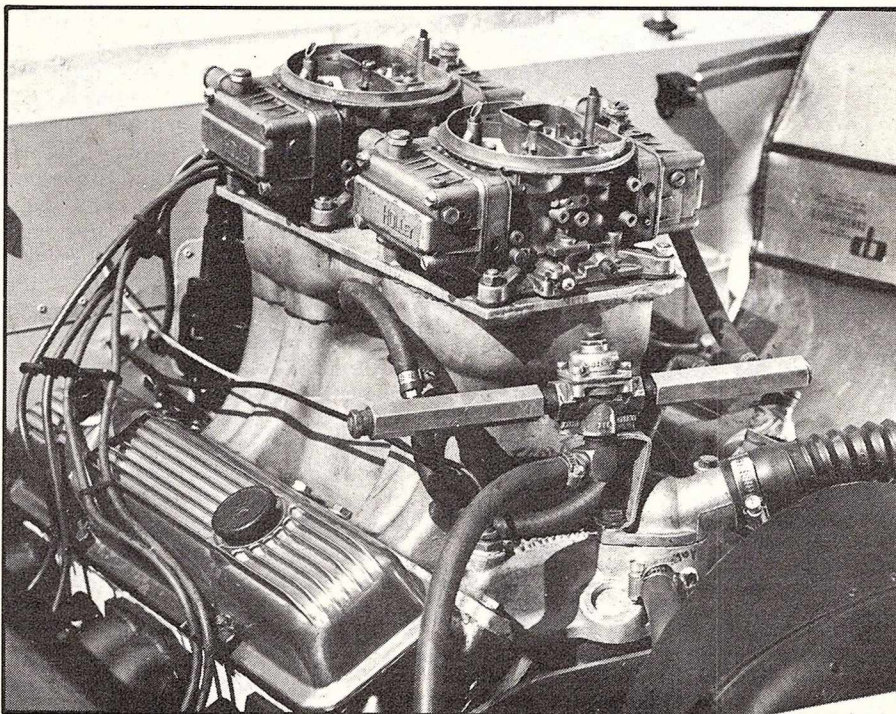
Though Jenkins prefers the small main journal crank, the block used in his Pomona engine required a large main journal crank. The crankshafts used in building his 327's are standard Chevrolet service items and are slightly different than original-production 327 cranks. They come fully Tufftrided from the factory and have part number 3838495 for the small-



Notches were hand-ground at top of the cylinder bores (arrow) to aid intake flow.



Longer than stock, forged-aluminum connecting rod was used to compensate for higher pin height of 350 Sealed Power piston used in Jenkins' 327; rod was not modified.

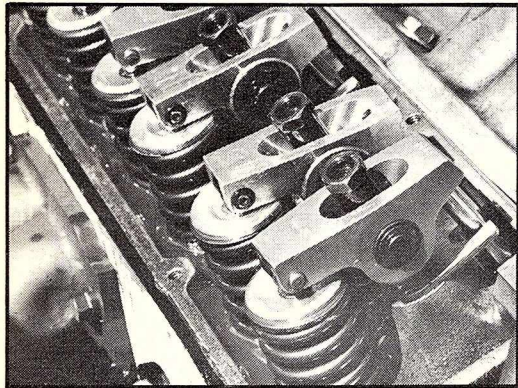


Top of Edelbrock plenum was cut away, reducing interior volume by about 50%. An aluminum plate was heli-arc'd to top of reworked plenum to hold 660cfm Holleys.

INSIDE GRUMPY'S TOY

journal crank and part number 3914681 for the large-journal crank. Though the large-journal crank was used in this case by necessity, the rod journals were ground down to the smaller 2.00-inch size, leaving the large mains at their stock size.

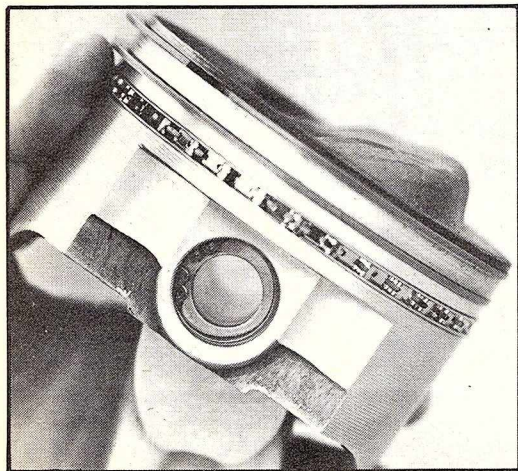
The crank was installed in the block using stock Chevrolet (Delco) type 400 bearings. Jenkins' policy is to run slightly more bearing clearance with the smaller journal cranks



Aluminum rockers had a 1.65:1 ratio on the intake valves and a 1.50:1 ratio on the exhaust valves.



Thirteen .045-inch-diameter holes allow pressure to enter the top ring groove to help seat the ring.



Forged piston uses double pin locks. Top ring is only .090-inch from deck, tightly fitted in groove.

because they tend to "whip and bend" more under stress. Small-journal cranks are run with a clearance of .0025-inch on the mains and rods; large-journal cranks have a clearance of .003-inch on both rods and mains. The Pomona crank, being a crossbreed with large mains and small rod journals, was installed with the .0025-inch clearances. The crankshaft thrust (end play) was set at .006-inch.

Jenkins' cranks are run surprisingly stock. They aren't cross-drilled, grooved, chromed or counterweighted. The front of the crank was fitted with a stock, early model, steel timing gear and a stock high performance 350 damper. Naturally, the whole crankshaft assembly was fully balanced.

The pistons and rings in the Winternationals-winning 327 were both produced by Sealed Power, the forged pistons being originally designed for the 350-inch engine (to compensate for the higher pin hole location of the 350 piston, Jenkins used a longer-than-stock connecting rod). Bill got the pistons before the top ring groove had been cut, so he was able to position and cut the groove exactly as he wanted to fit the "D" depth, barrel-faced, 1/16-inch, ductile-moly rings. He placed the top ring .090-inch down from the deck surface, cutting the groove to allow a much more precise fit of the ring in the groove than is normally found. While most pistons are designed with a ring-to-groove clearance of about .0025-inch, Jenkins likes a clearance of only about .001-inch. The compression rings were fitted with end gaps of .014-.016-inch.

The diameter of the piston above the top ring groove was reduced by cutting the piston in a lathe to give a piston-to-wall clearance above the top ring of .044-.045-inch. This helps insure that the piston top will not come into contact with the cylinder wall if it rocks slightly in the cylinder bore. Normal piston-to-wall clearance was maintained at .008-.0085-inch at the center of the wrist pin, measured perpendicular to the pin.

Jenkins' oil ring combination used Sealed Power components originally designed for two different bore sizes: the expanders came from a .030-inch undersize bore set, while the scraper rails were from a standard bore set. The undersize expander gave the oil rings the low tension Jenkins desired.

One of the "tricks" Grumpy has been using for the past couple of years can be seen in the photo of the top of his 327's piston—a series of small-diameter holes drilled around the edge of the piston's deck surface. Bill calls these "pressure relief holes," and they're there to

improve the seating and sealing of the top compression ring. The holes, each having a diameter of about .045-inch, extend through the piston's deck surface and into the very back of the top ring groove. The idea is to allow some of the pressure built during compression to enter the holes behind the ring, forcing the ring against the cylinder wall for a better seal. Bill has tried different numbers of holes spaced around the piston top, and now stays within the range of 10 to 14 holes, depending on bore size and dome design. The pistons in the Pomona engine had 13 relief holes each. Naturally, the size and effectiveness of each hole changes as carbon builds up in the combustion chamber.

The piston domes were adjusted to a displacement of 13cc's, giving a compression ratio of just over 13:1 with a 58cc combustion chamber. Valve clearance notches were cut .060-.080-inch larger than the valve head diameters, but Bill points out that experience is the only way to know exactly where to position the notches on the piston top to allow for piston rock. Valve-to-piston clearance was set at .035-.040-inch (plus valve lash) for the intakes and .080-inch (plus valve lash) for the exhausts. Piston-to-head clearance was .045-.050-inch with a stock Chevy high performance head gasket (part number 3916336). Piston top edges were given a slight radius.

The finished piston dome and deck surfaces were given a medium grit glass beading and were treated with a heat resistant coating before the pistons were installed. Jenkins preferred not to identify the particular coating or the method of application.

Standard Sealed Power piston pins were used with double Tru-Arc retainers. The pins were fitted with .001-inch piston-to-pin clearance, .0008-inch pin-to-rod clearance (aluminum rods), and .005-inch end play.

The connecting rods in the Pomona engine were forged aluminum, and were .115-inch longer than stock to compensate for the different pin location of the 350 piston. The longer rods (5.820-inches center-to-center) also offer a better rod angle. Bill has used several different brands of aluminum rods in his engines without ever having had a rod failure, and without yet having made a judgement about the relative quality of the different brands. The rods he used in his Winternationals engine were installed without modification.

Probably the single item most people are curious about in Grumpy's engine is the camshaft. At Pomona he used a standard, off-the-shelf, General Kinetics number C1M320-F,

(continued on page 114)

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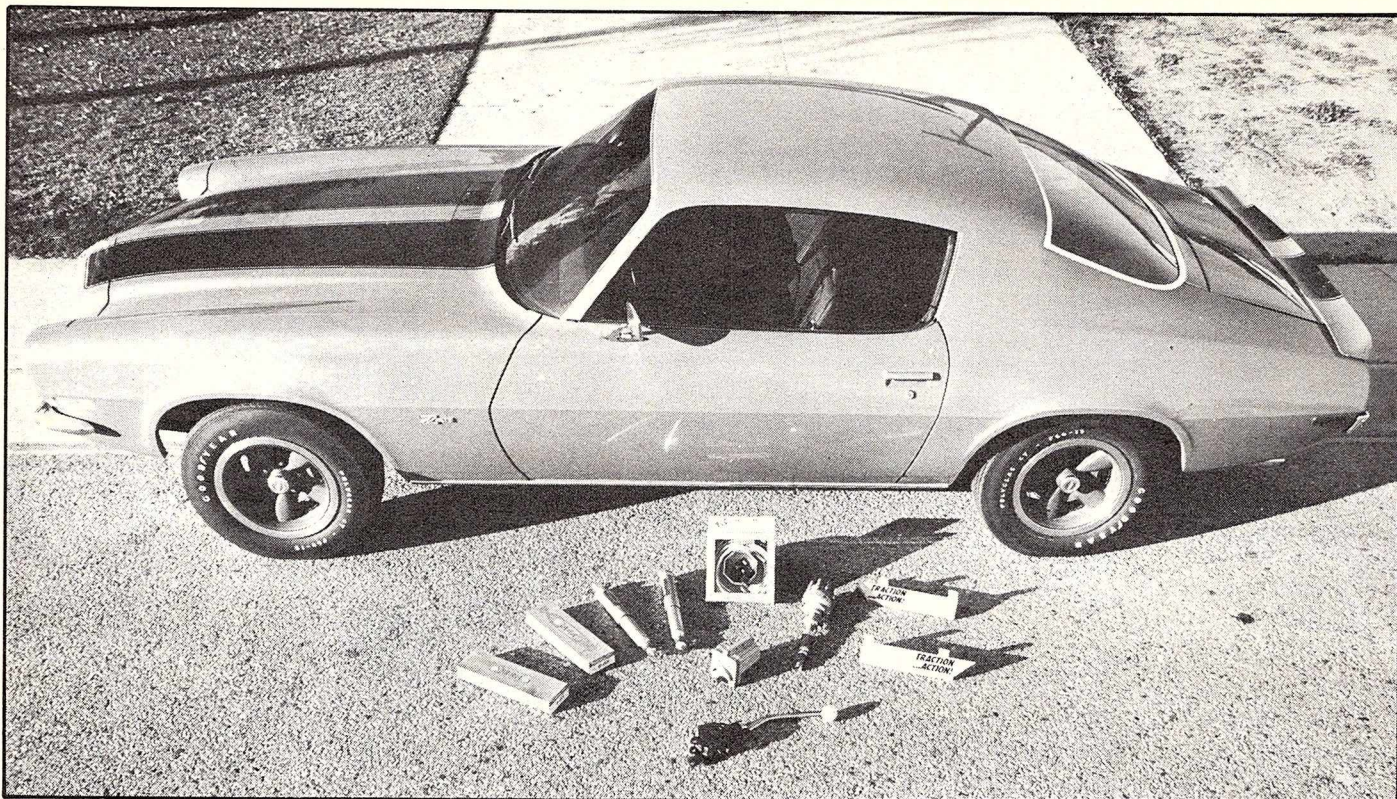
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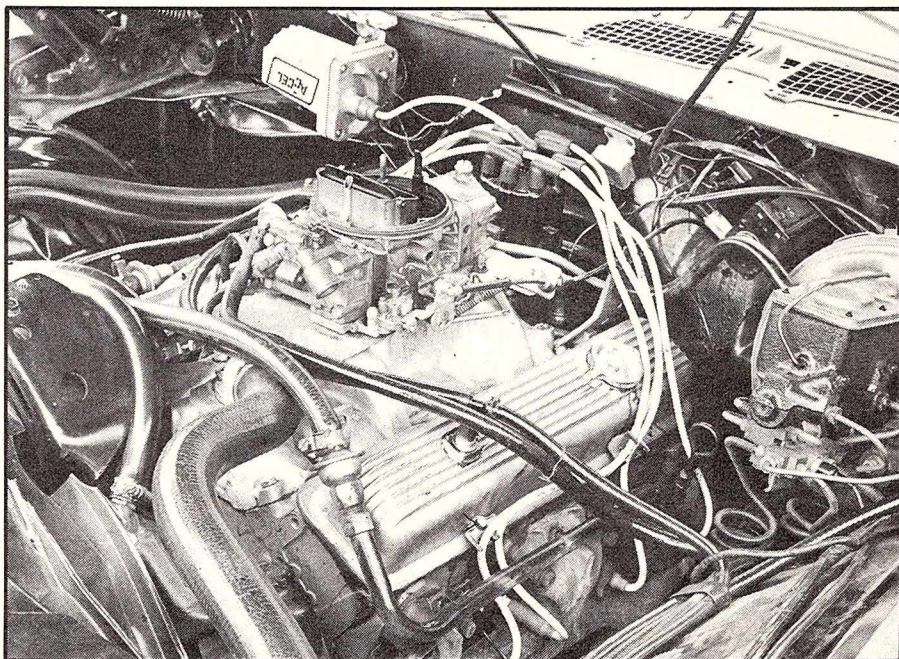


Put your car on an e.t. diet with new shocks, lift bars and ignition work

TEXT AND PHOTOS BY STEVE COLLISON ■ After examining the rules and pondering the preparation of cars entered in NHRA's revised Stock Eliminator at Pomona (and partly because we wanted to field an entry but were hampered by editorial commitments), *CAR CRAFT* felt it could provide an insight for you in this type of racing by preparing a vehicle with regard only to its ignition, suspension, and shifting ability. We won't attempt any exotic engine treatment because one must first get his chassis to work before additional horsepower is applied.

Our test car was a 1970 Z/28 Camaro having the 360hp, 350ci LT-1 engine. It belonged to Steve Sowell, who purchased the car used with only exhaust cutouts and a slipping clutch as reminders of the previous owner. Steve replaced the clutch disc with a stock factory item, added consistency to the transmission controls by way of a Hurst Competition Plus shifter, and then journeyed to Orange County Raceway. With only a fresh set of Autolite AT3's to help an otherwise totally tired motor, Steve piloted his car to a best of 14.95 at 95.84 mph. The Camaro was brought out at 3000 rpm and shifted at 6000. Its 3.73:1 rearend gearing dictated either short-shifting high gear or going through the top end in third. We noticed higher trap speeds by shifting

PURE STOCK POWER



Although the 360hp/350-inch LT-1 motor was tired, it responded well to added benefits of Accel's "Super Coil," dual point breaker plate, solid core wiring. A 14.10 was best.

early into fourth gear, thereby providing us with a driving standard for all ensuing runs.

The first step was exchanging the worn shocks for new units from Monroe-Max. The front end received high-rise 90/10's, a low recovery drag shock that keeps the front end up during acceleration, thus contributing to better weight transfer for a pure stock vehicle. For added lift at the leaf spring-suspended rear, we installed two 75/25 shocks designed to allow body lift without the shock extending to its limit. These units are not recommended for street use, as a low degree of extension adversely affects the car's handling. Completing the suspension modifications were a set of Lakewood's "Traction Action Junior" lift bars clamped to the Camaro's springs. We played around with the front clamps on these bars, trying them loose and tight to determine which would work best. Snug clamps proved to be better. With no other changes than those mentioned, the Z/28 picked up almost half a second and 3 mph, recording a 14.53/98.14 in the process. The chassis worked so well that instead of bringing the car out at a predetermined 3000

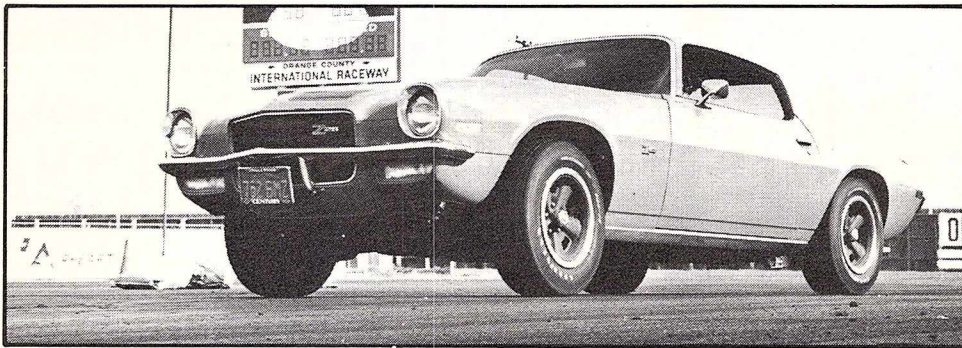
the firewall in conjunction with a supplied ballast resistor. When used with Accel's dual-point breaker plate and condenser, the Super Coil provided enough spark to supply the Camaro with another three-tenths decrease in e.t. Total timing was set at 40 degrees and the engine appeared to respond accordingly. The best of three passes gave us a 14.21 while the speed finally topped the century mark, 100.19.

With one remaining step to perform, we were looking good. Not in terms of this car's competitiveness in class (the mark in A/S is a 12.40 minimum), but its gains in both speed and e.t. since our changes. Sowell crawled under and uncorked the two cutouts located amidship of the Z/28. While not sounding at all like they would work to our benefit, we did expect a better mile-per-hour. Steve didn't disappoint us as the final pair of runs posted a 14.15/101.89 and 14.13/101.68.

Reflecting upon our modifications left us impressed, not with the car's performance (we've had new LT-1 Camaros run 14-teens at 102 mph in pure stock), but with the achievements provided by our additions. A total of .82 second and 6 mph were gained by



Lakewood traction bars and Monroe 90/10 front, 75/25 rear shocks were worth half a second.



Camaro's suspension worked so well it had to be brought out at 5000 rpm or motor would bog.

rpm, the Camaro would bog terribly at anything under 5000. This sounds like a lot of rpm for stock F60-15 Goodyear Polyglas tires, but that's what it took to launch the car.

Our second phase included the ignition. The NHRA rulebook states that any spark plug or ignition wire may be used, as well as any coil, points or condenser. We installed one of Accel's new "Super Coils" and their solid-core, silicone-jacketed plug wire. The coil is a formidable looking piece that mounts to

merely swapping ignition components, trading the shocks for more positive-acting drag units, bolting up a set of budget traction bars, and adding a Hurst shifter. The Hurst unit made changing gears more reliable and the entire test proved that most of you can attain an increase of nearly a full second by imitating the steps we've outlined here. Moreover, when you begin tuning on that engine, there's no telling how quick you can go. And it's still street legal!

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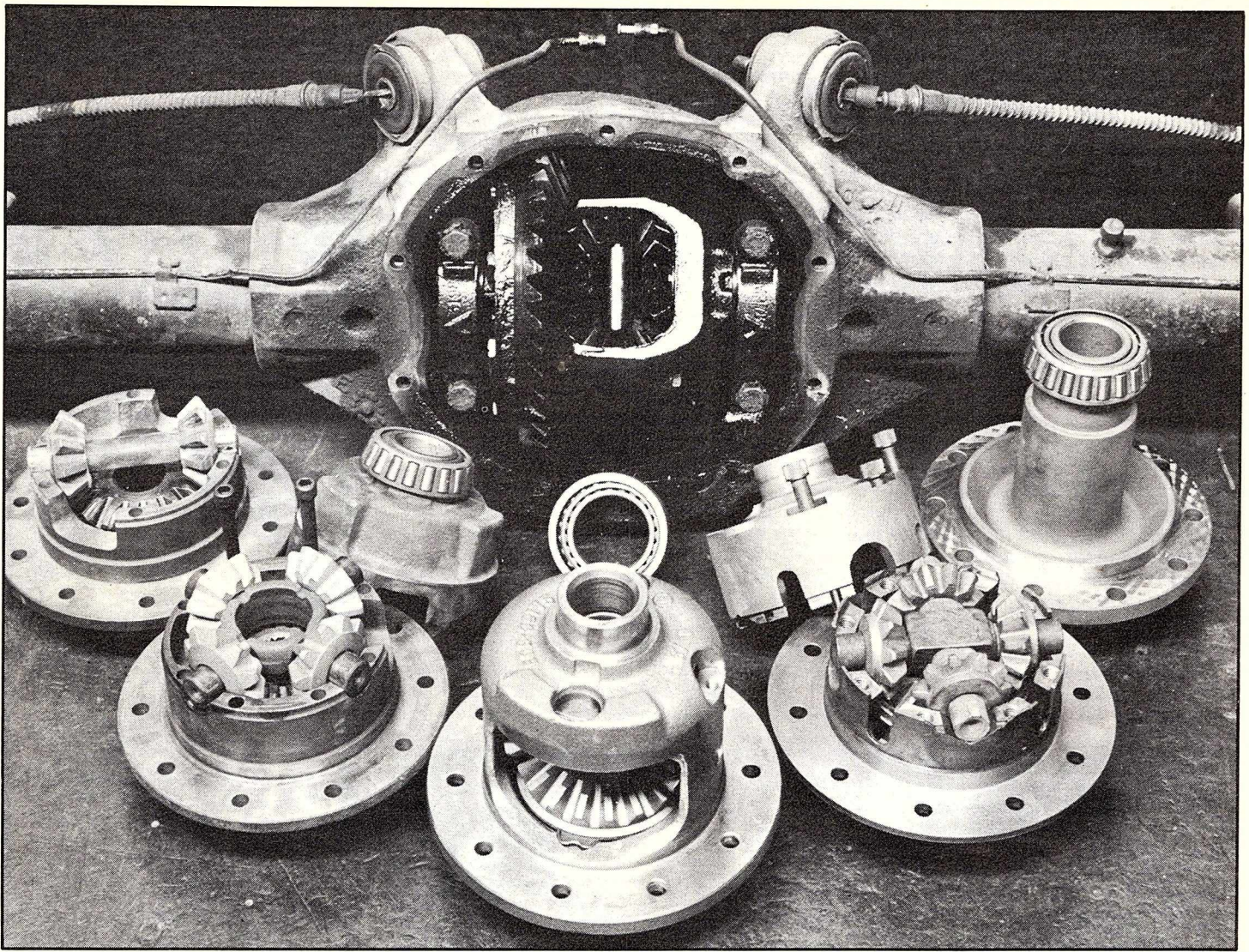
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10-Bolt Boost

Gettin' it on with the GM 10-bolt rearend

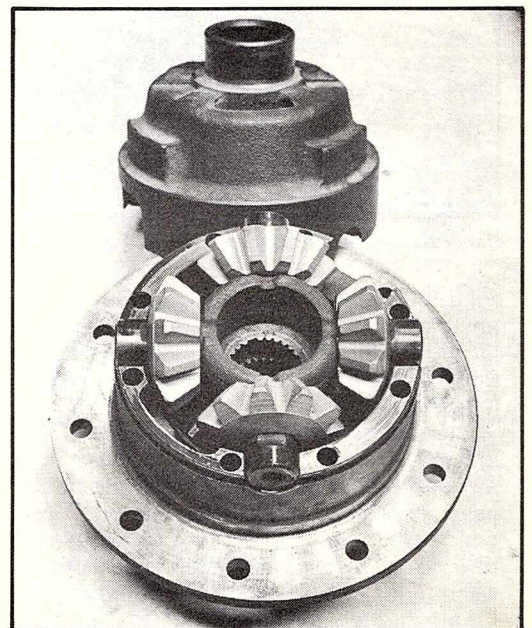
TEXT AND PHOTOS BY LARRY SCHREIB ■

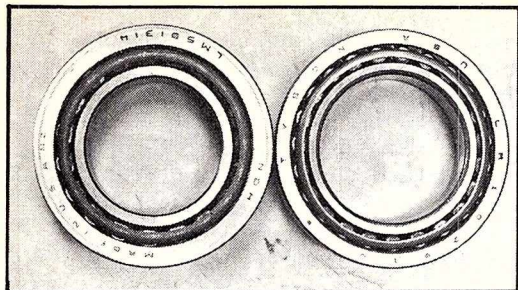
Few racers would seriously consider the GM 10-bolt rearend for a racing application. It is, nonetheless, the only differential available in the very popular 1957-64 Chevrolets (Hotchkiss-type with 10-bolt carrier flange) and the IRS Corvette, and is the most common rearend found in the late-model Chevilles, Chevy II's, Camaros and GTO's. Generally, the heavy-duty GM 12-bolt unit is swapped into any of these cars (except the Corvette) prepared for serious competition. However, if you have a Corvette, a strong street car or a bucks-down part-time racer, that old 10-bolt can be saved and set up to accept all but the most severe abuse.

During research for this story we

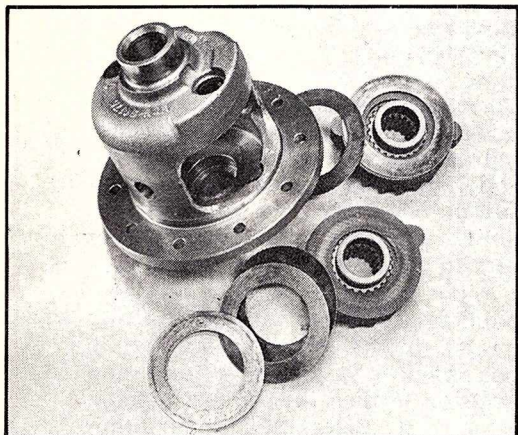
spent considerable time at Pepe's Rear Ends in Paramount, California. Pepe Estrada specializes in competition third members and has enjoyed a considerable reputation for his "unbreakable" setups. There are basically five ways to go with the 10-bolt rearend, according to Pepe: the straight open-type differential, the cone-type posi (for our purposes, the term "posi" will refer to a limited-slip or locking-type differential often called a "posi-traction" unit), the Eaton posi, the Dana posi and the spool.

Two of these units will only be discussed briefly. The straight differential has few serious applications and should generally be avoided. At the other end of the scale is the lightweight Halibrand 10-bolt spool, the strongest of all units that will fit into the 10-bolt housing. This is a "racing only" application totally unsuited for street cars, as there is no

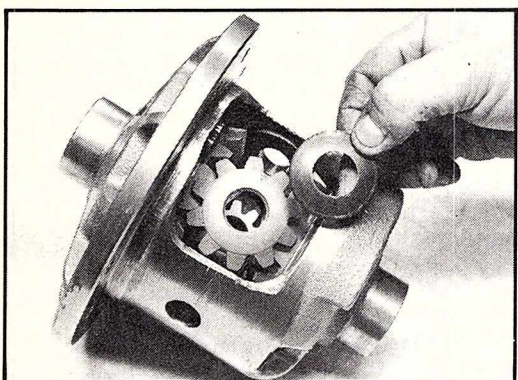




Timken bearing 102910-102949 (right) allows Eaton Corvette carrier to fit into 10-bolt housing.



Approximately 0.065 inches of shim should be used behind clutch packs on Eaton carriers.



This differential pinion washer can be discarded during reassembly of Eaton steel-cased carrier.

differentiating action as the car turns a corner. The axles are locked together (it should be mentioned that if a spool is used in a racing rearend, the strongest axles available from a specialty manufacturer, such as Henry or Summers Brothers, should be used, because a broken axle on a locked rearend will transfer all of the driving force to the other axle, causing the car to veer uncontrollably in the opposite direction).

There are two major cone-type posi units. Most common is the two-differential pinion gear (often called spider gears) model found in many GM automobiles. This carrier is considered inadequate for any heavy-duty applications and should be shunned in favor of the four-differential pinion unit used in heavy-duty Pontiac GTO and HD Buick models. The four-pinion carrier is entirely interchangeable with the standard Chevy 10-bolt unit, and is probably the minimum strength unit to be seriously considered.

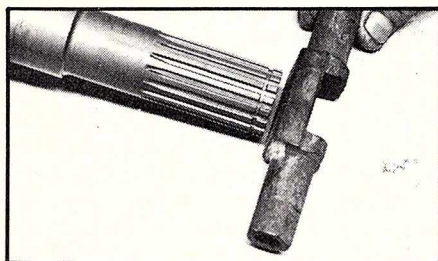
For racing purposes, Pepe recommends that the eight 5/16-inch case bolts that join the two halves of this carrier be replaced with 3/8-inch

N.C. hardened (38-44 Rc) Allen bolts. This will require some drilling and tapping, but Pepe recommends that all stock bolts in any differential be replaced with hardened Allen bolts, as the stockers are probably the weakest link in the entire unit.

The stock ring gear, pinion, side gears and differential pinion gears can be tempered to extend their life. The average enthusiast can perform this operation in his own kitchen. The parts will have to be magnafluxed to insure there are no cracks in the metal, placed in an oven at *exactly* 400° F. for a minimum of six hours and allowed to cool at room temperature. Pepe knows this operation alone will double the life of most mass-produced gears. The cast iron side bearing caps should be taken to a competent heat-treater and stress relieved to eliminate brittleness before reassembly.

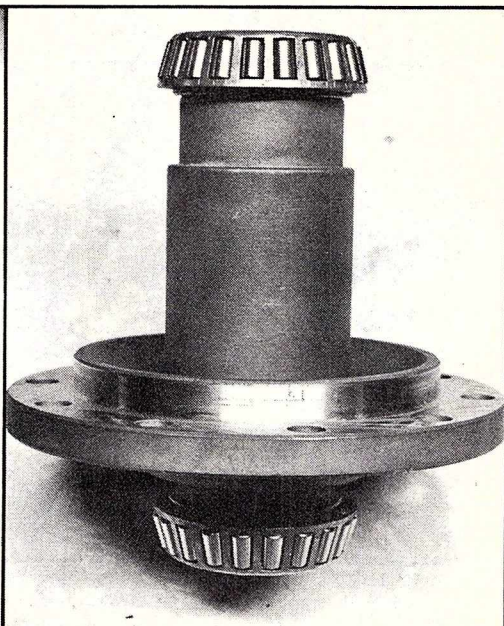
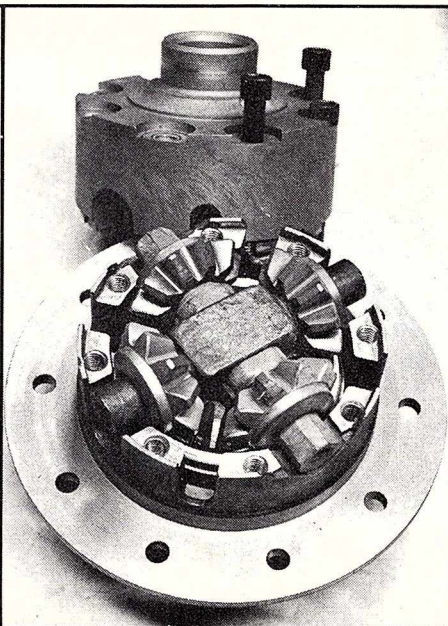
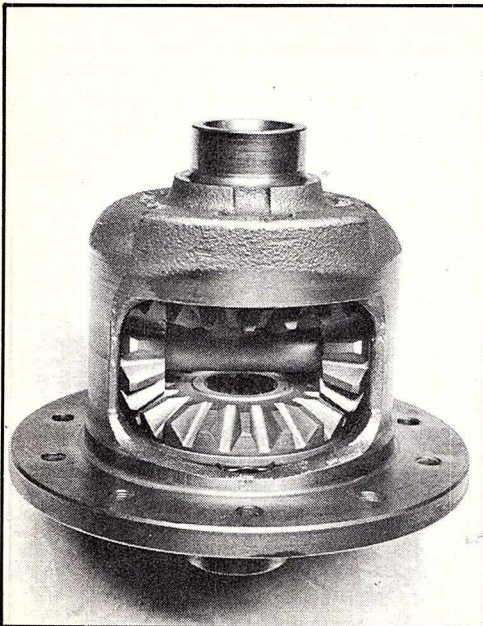
Unless the car is driven on ice and snow, the preload springs and retainers that fit between the axle shafts can be left out. Omitting these parts will prevent galling in the tapered side clutch and cone area.

Clean everything thoroughly before assembly and use only new bearings when assembling any carrier. The ring and pinion ratio is strictly up to the desires of the individual, but Pepe prefers heat-treated Schiefer gears and, in fact, recommends them. When installing the pinion he does not use a crush sleeve, but substitutes a slight amount of Loctite "Stud Lock" (red liquid) to secure the pinion bearing to the shaft. He also recommends that Loctite "Lock and Seal" (blue liquid) be used on the pinion nut.



Check for clearance between cross shaft and axle ends, grind end if needed.

BELOW—One of these four carriers should be chosen for high-performance use in the GM 10-bolt rearend. In order of relative strength from least to best, at left is a four-pinion HD Pontiac and Buick carrier. Next is an Eaton posi from a late model Corvette. Then a Dana carrier from a '57 to '64 Chevy; and a lightweight Halibrand spool.



10-BOLT BOOST

The next strongest carrier is the Eaton posi unit found in all late-model IRS Corvettes. If this carrier is to be used, locate one with the words ARMA STEEL stamped on the one-piece case. This steel unit is vastly stronger than the cast iron case used on some applications. This carrier normally fits into a Corvette housing, which has larger side bearing journals than the Salisbury axle housing. Timken bearing number 102910-102949 will allow this unit to be fitted into the standard rearend with no trouble. The bearing has a larger inner race to fit the Eaton carrier and a smaller-diameter outer race to fit into the small journal in the housing.

Once again the heat-treated Allen head bolts should be used and the ring gear, pinion, side gears, differential pinion gears and cross shafts should be treated. Since this setup is able to stand more severe abuse, Pepe recommends that the pieces be Mar-tuffed. This special treatment, developed by Pepe, "strengthens the metal and removes any tendency to crack. It involves a refinement of the grain structure of the metal to a very high degree through a strictly controlled cooling, heating and irradiation process." Pepe is so confident of the amazing results of this treatment that he can practically guarantee treated parts against failure.

Stock flat posi clutches are used and approximately .065-inch of shim is placed behind each clutch pack before assembly. The preload springs are again discarded along with the differential pinion washers that fit between the spider gears and the case. With the proper shimming behind the clutches, the differential pinion gears

are slightly difficult to fit and often require gentle hammering with a brass punch, but it should be noted that the gears will only accept more than slight hammering if they are properly hardened (Mar-tuffed).

The Eaton NASCAR 30-spline spiders can be installed into any Eaton carrier with a slight modification for the larger cross shaft. Special axles from one of the aftermarket manufacturers mentioned earlier will be needed. Pepe also noted that if the car is being built on a tight budget, only one axle need be purchased for use on the *left* side, as this is the one that fails 90% of the time.

Pepe considers the Dana posi unit found in the '57-'64 Chevrolets to be the best limited-slip carrier that will fit into the 10-bolt housing (use the Timken bearing mentioned earlier where necessary). He uses this carrier to replace the Eaton unit found in the IRS Corvettes, and assures them to be "bulletproof." This carrier is an excellent shock absorber to soak up the strain when the clutch is dumped, and unbolting the two halves provides easy access to the internal parts.

In addition to the normal hardened Allen bolts, Pepe uses specially made 44 Rc left-hand thread bolts to hold the case halves together. All new bearings are used, and since this case will accept considerable punishment, Pepe recommends that, in addition to the Mar-tuffing treatment, the clutch plates be tufftrided (do not under any circumstances tufftride ANY gears or cross shafts).

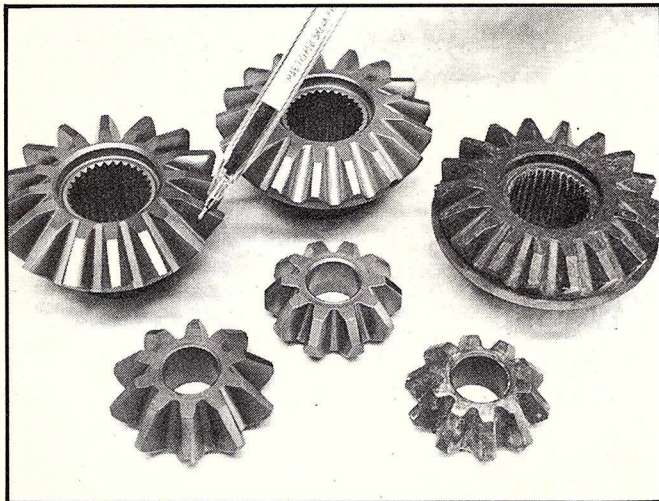
Use only the flat clutches found in the early models. The late stockers are slightly dished to preload the clutches and are undesirable for high performance. It is very important that there be at least 1/16-inch of clear-

ance between the differential pinion cross shafts and the axle ends. If there is insufficient clearance, the carrier simply will not last. Pepe grinds as much as 1/4-inch off the Corvette axle stub shafts to gain the proper clearance. The third member must be completely assembled and the clearance checked to guarantee operation, especially if the Dana is being adapted to fit into a non-posi housing.

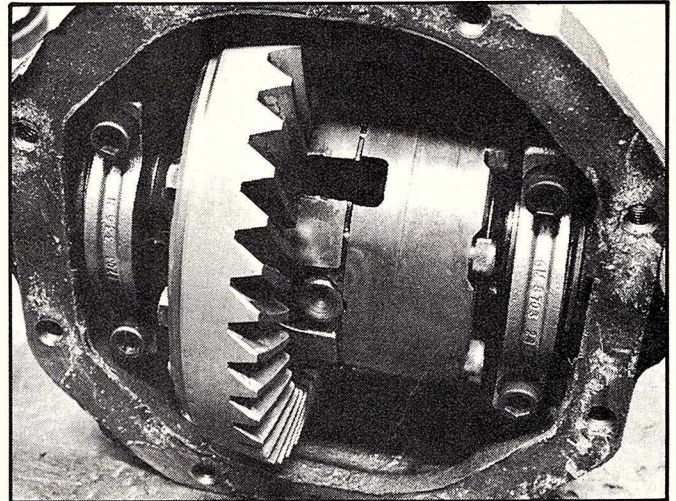
Finally, Pepe recommends that special axles be used on any car equipped with the Dana unit. Pepe likes to use a special heavy-duty Chrysler NASCAR 30-spline side gear in these carriers, which necessitates the special axles. The axle housings should also be welded to the center section with nickel rod, and the two holes on either side of the center section should also be filled with rod.

Pepe sets up all rearends with zero backlash (street or strip). The ring gear-to-pinion tooth pattern should be checked with white lead and adjusted to gain the longest pattern. Usually a .005-inch thinner-than-stock pinion shim will get the best results. (Pepe machines all of his carriers for zero ring-gear runout.) The pinion bearing preload should be 15 in/lb and the side bearing preload should be just snug with no play. Bearing caps with 7/16-inch Allen bolts are torqued to 75-80 ft/lb and 1/2-inch Allen caps are torqued to 100-105 ft/lb. Pepe uses only one kind of lubricant, 140-weight Valvoline or 140-weight Torco oil (never any 90 weight).

Before you junk that old 10-bolt, give it some thought. Unless you already have a real earth mover, spend the money to set that 10-bolt up right, and more than a few of your fellow racers will want to know how you did it. 



On left is a Chrysler 30-spline HD side gear and spider (note larger teeth), in middle is HD 30-spline set for Eaton carrier; on right is a welded-up stock gear for locked Eaton set-up.



This is a Pepe special "Bulletproof" IRS Corvette center section. All gears and carrier caps are Mar-tuffed; special hardened Allen bolts, flat clutch plates and special bearings are used.

THE USE OF GRAVITY AS A SAFETY FEATURE.

We'd like to take this opportunity to publicly thank Sir Isaac Newton for helping us design the Chevrolet Vega.

Actually, he didn't have much to do with the door handles or the ashtray. But we did use his principles of gravity to help us make our little car the great little car that it is.

Vega has a low center of gravity. That is, it sits very low to the ground. It also has a wide stance. Altogether, that makes Vega a very stable little car. Out on the road it's able to cope very nicely with curves and crosswinds.

Naturally, there are many other things that we put into Vega to help protect you. Like two steel roofs instead of just one. And side-guard door beams. Some little cars don't

have them, you know. Our responsive overhead cam engine can also be a big comfort. On a fast-moving freeway Vega doesn't seem like an economy car.

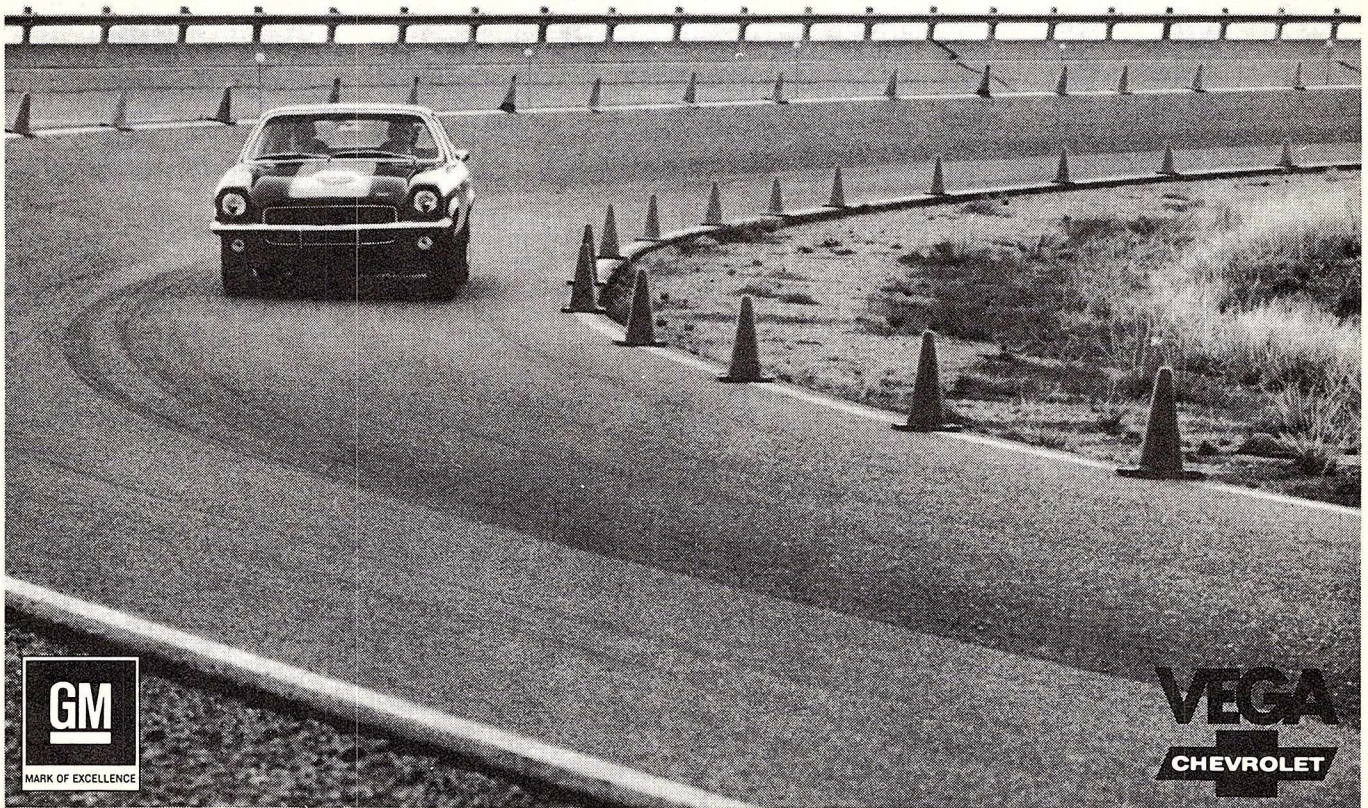
And, because we want to make the stopping as good as the going, front disc brakes are standard.

Vega also has a new front seat belt reminder system. With a light and buzzer to help you remember that if you don't use your belts they won't do you any good.

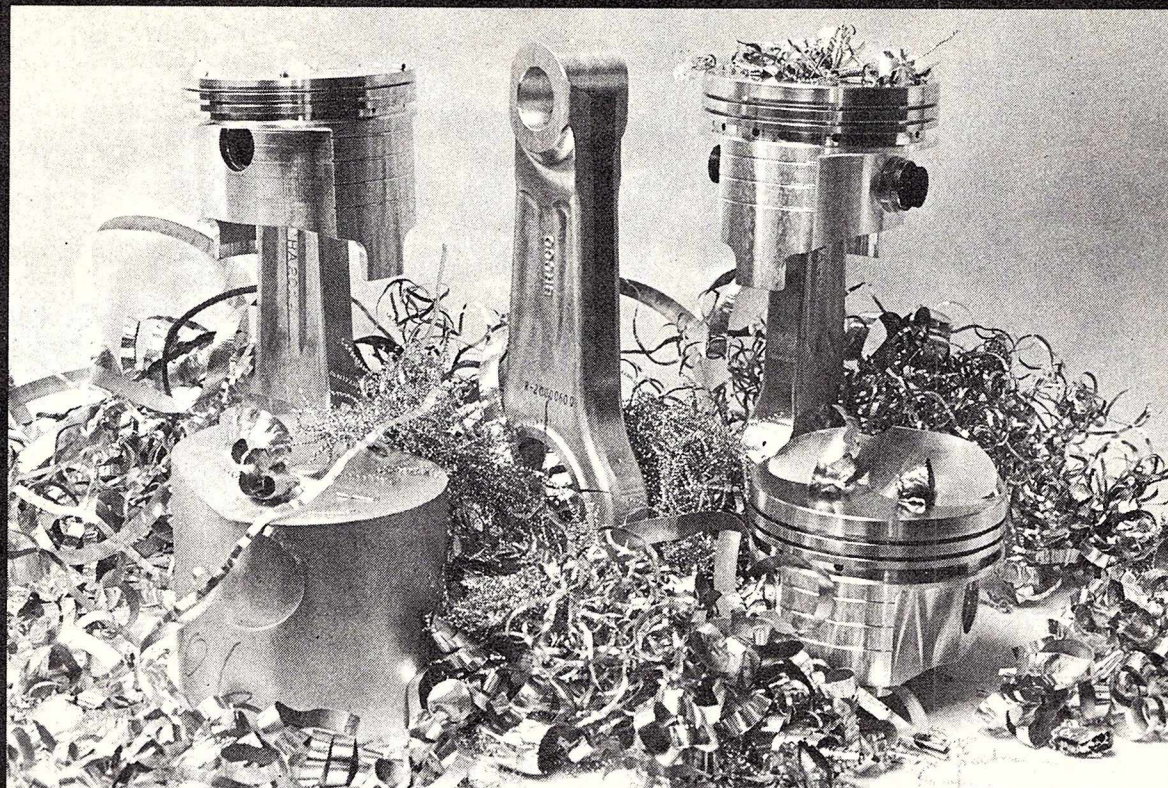
We'd like to urge you to go down to your Chevy dealer's and test-drive the most popular little car made in America. We think you'll be amazed at how well Vega holds the road.

And we think Sir Isaac would be proud.

Vega Coupe on the track at the GM Proving Grounds, Mesa, Arizona



Chevrolet. Building a better way to see the U.S.A.



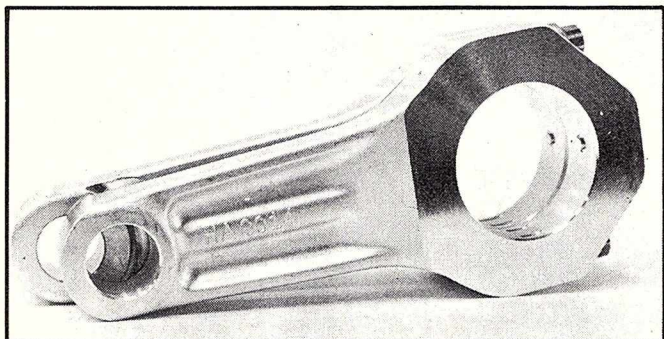
BLOOMIN' ALUMINUM

New racing parts are sproutin' at Brooks Racing Components

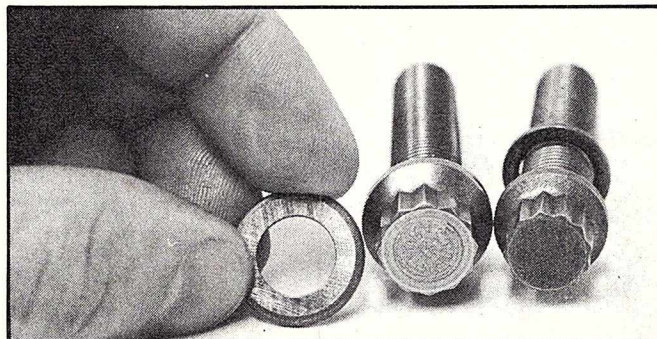
TEXT AND PHOTOS BY LARRY SCHREIB ■ Bob Brooks paid his

dues back in the 60's. During his early career in racing, he was at various times associated with great names like Mickey Thompson, Dan Gurney, Jerry Grant and Venolia Pistons. From the very beginning he was involved in the design and construction of high performance

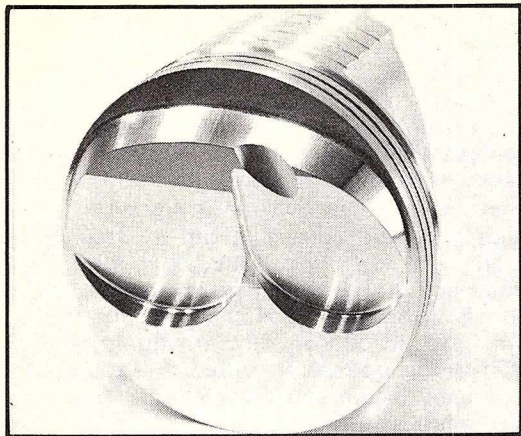
pistons for various types of racing engines. Finally, he reached the point where he wanted to utilize his own design concepts and so logically moved to establish his own company. Brooks Racing Components (BRC, Inc.) is located in Westminster, California, and its list of satisfied custom-



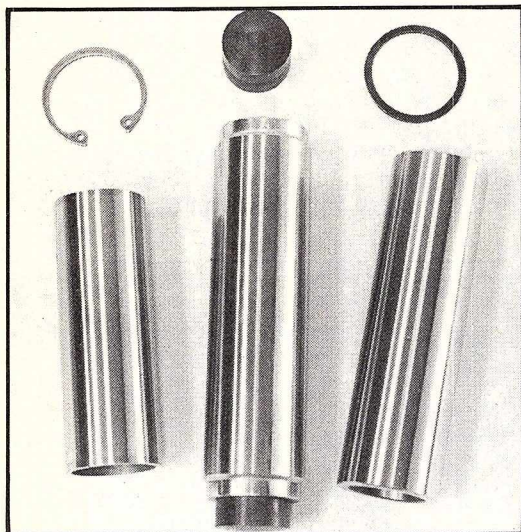
BRC aluminum small-block rods are available in any length from 5.700 in (stock) to 6.250 in., 0.550 in. overlength.



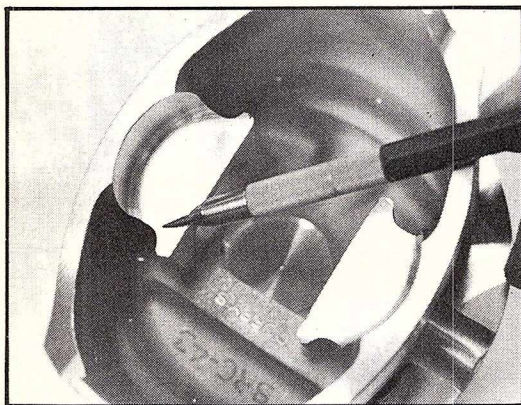
BRC 7/16-inch rod bolt (left) has larger head, increased bearing surface. Flat-ground washer insures correct alignment.



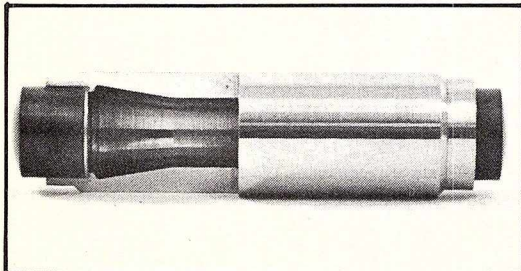
Piston top is machined with any c.r., fire slot and valve-notch diameter, depth asked by customer.



Short BRC pin and snap ring (left), long pin and self-retaining buttons (center), stocker (right).



Intricate forging decreases weight, prevents extra drilling and milling. Forged rib strengthens boss.



BRC tapered pins are machined from bar stock. Self-retaining pins leave no deposits on wall.

ers is growing longer every day.

The BRC forged aluminum piston is an extremely high quality part intended for racing applications. Originally, Bob worked with a close friend of his, Bob Duffy of Duffy's Performance in Redbank, N.J., to produce a light, rigid piston for use in the old NHRA Stock and Super Stock classes. The blank forgings are machined to the customer's exact specifications in Bob's shop, however, and the pistons are suitable for any racing application imaginable.

Bob feels the ring seal is very critical in a racing motor and has worked toward eliminating flexing in the ring area. By narrowing the piston across the pin boss, Bob feels the long sides give added support to the thrust side of the engine (a basic engineering principle). The narrow sides lead to a narrower pin, but Bob was careful to keep the pin bosses wide enough to give adequate pin support. Braces are also used alongside the pin bosses to give added strength in this area. Rather than use excessive drilling and milling inside the piston to achieve lightness, Brooks designed a more intricate basic forging to keep the final product as light as practicable without sacrificing strength. He feels that excessive milling breaks the grain structure of the metal and can seriously weaken aluminum pistons.

The skirt area on the thrust side and the side opposite (where the load is carried when the piston is being pushed up in the bore by the connecting rod) are kept small in order to lower frictional losses. The skirt is buttress-threaded to aid oil retention and prevent galling. Bob calculates that about 12% of the actual skirt area contacts the walls.

By carefully balancing the design objectives in the skirt area, Bob feels his pistons are approximately 70% stiffer across the thrust sides and far less prone to flexing, thus enabling the piston to hold the rings in line, maintaining ring seal. Bob can provide pistons for any of the popular engines and can give the customer any ring combination, pin location and compression ratio the motor will accept.

To hook these pistons onto the crankshaft, Bob has designed his own forged aluminum rod, and he plans to have forgings available to fit most popular motors. Currently BRC has a complete selection in stock for big and small-block Chevys and the Chrysler hemi. The aluminum forged connecting rod offers two advantages over the standard steel rod. The aluminum material will increase heat dissipation from the piston and the resiliency of aluminum will re-



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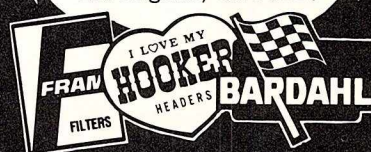
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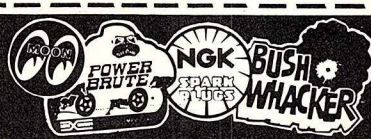
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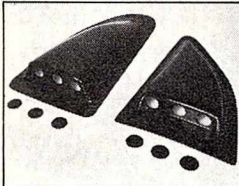
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BLOOMIN' ALUMINUM

duce the shock loadings between the piston and the crankshaft.

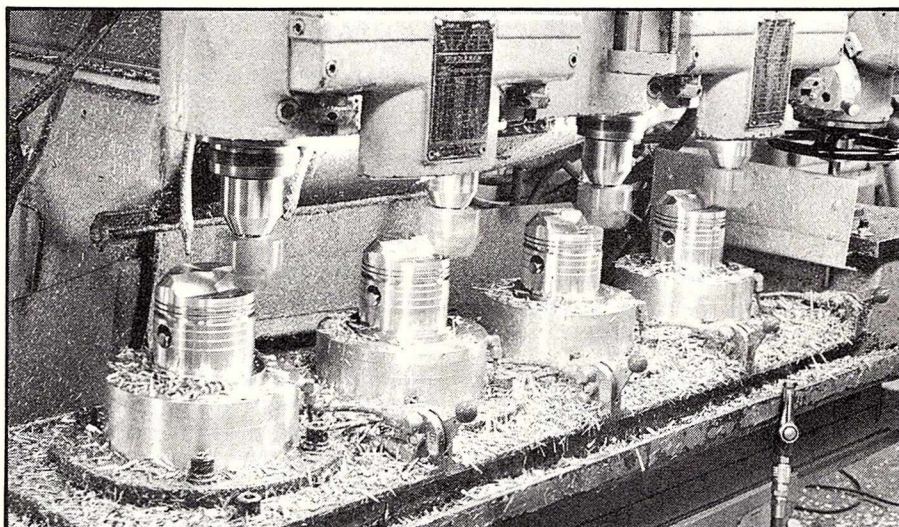
When designing the rod, Bob decided to sacrifice a very slight amount of weight reduction in the big end to insure maximum strength. This is very important, as aluminum is naturally not as strong as steel and can only equal steel in reliability if it is sufficiently large enough in mass. After the forgings are received, all the forging flash is carefully machined away and the sides are trued to eliminate any uneven spots where stress points could start cracks.

The bolt holes are shot-peened inside to eliminate stress risers, and the entire rod is cold-stabilized in a three-stage process to relax any inner stresses formed during the forging process. This allows the rod to assume a relaxed shape, then final machining for center-to-center distance and hole size is performed.

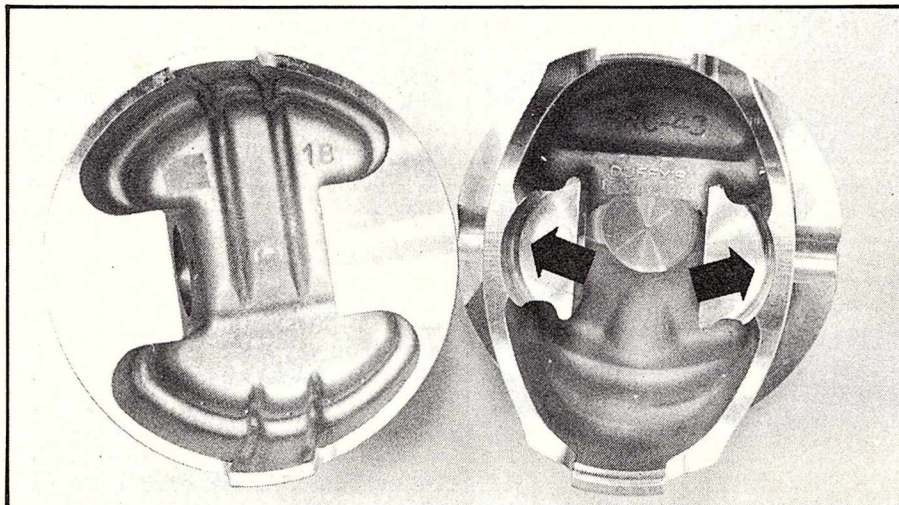
This gives the rod a much truer configuration and eliminates dimensional change while the rod is operating in the engine.

The bolt holes are not drilled completely through the rod, as Bob feels this reduces rod strength in this area. Rather, the bolt holes are only tapped to the correct length for the bolts and are blind drilled through the back side to eliminate hydraulic ing from oil trapped in the hole during rod torquing. Aircraft quality 7/16-inch bolts with rolled threads are used in the small-block rods. To increase strength in the big-block rod a special 7/16 bolt with a larger head (52% greater bearing surface) is used in conjunction with a special washer ground absolutely flat on both sides.

The rods are machined to BRC specs and come in a variety of lengths. The small-block rod is available with a center-to-center length from 5.700 (stock) to 6.250 inches long (0.550 overlength) giving



BRC uses Cincinnati Hydratell automatic profile milling machine to form piston tops to exact specifications. Machine is capable of milling deck height to within 0.0005-inch.

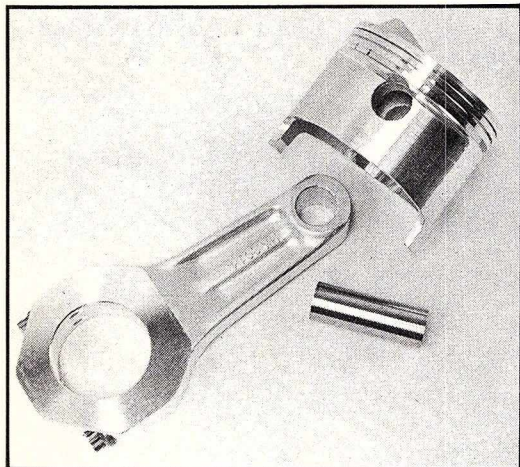


BRC piston as compared to conventional type. Narrowing piston across pin boss increases skirt stiffness on thrust side, provides light construction, improved ring sealing.

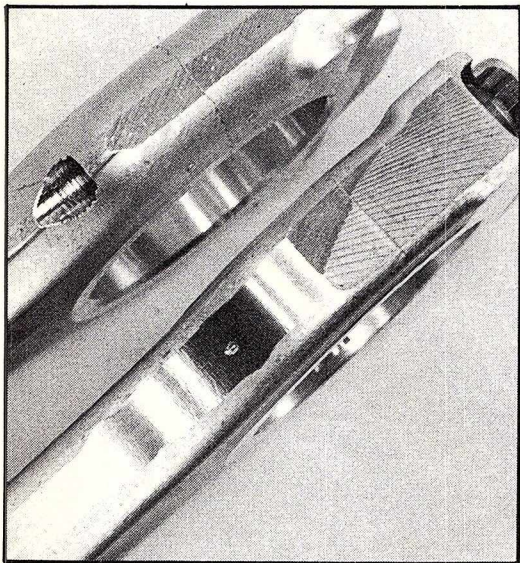
the customer a wide choice of rod-to-stroke relationships.

To hang the piston onto the rod, Bob machines his own pins from solid 4340 bar stock. The pins are tapered inside to reduce weight and retain strength. If the customer desires, the pins can be used with double or single snap ring type locks or special Nylatron GS plastic buttons fitted snugly (self-retained) into the ends of full-floating pins. The pins are all hard chromed and magnaflux inspected.

The total assembly represents an extremely strong and durable combination intended for the most demanding of engine applications. Bob stated during our visit that he intended to produce and market the best possible part available for any particular racing application in which popular engines were used. His parts were designed to be the strongest and lightest available. After leaving his shop, we have a tendency to believe he means to do just that. ©



Complete assembly is lightweight, extremely high quality unit designed for all-out racing engines.



Small hole on BRC rod (bottom) prevents hydraulic locking, is stronger than drilled rod (above).

WHICH TARANTULA IS BEST FOR YOU?

"TM-1"

1. RPM range for which manifold is primarily designed to produce most substantial power gains: 4000-8500 rpm.

2. Street/strip manifold combining some of the best-known features of racing manifolding. Especially good for street use where rear gear ratios on the order of 4.10-4.88 are used and engine is not required to produce substantial torque below 3500 rpm.

3. Designed more for race than street application since it tends to match cylinder head port flow characteristics, thereby providing exceptional high rpm air/fuel mixture passage.

4. Excellent mixture distribution (cylinder-to-cylinder) resulting from matching flow characteristics of each manifold branch (runner), one to the other.

5. Low silhouette, permitting use of manifold on engines of restricted carburetor-to-hood clearance.

6. Provision of all mounting points needed to re-attach original equipment hardware and accessories following installation of manifold (choke heater, coil mounting, etc.).

7. Capable of reducing exhaust emission levels through the combination of improved cylinder-to-cylinder air/fuel distribution and substantial boosts in mixture speed throughout the manifold. Velocity increases tend to aid fuel suspension thereby reducing air/fuel separation, puddling and subsequent fuel mixture variation cylinder-to-cylinder. Generally, rich cylinders are high HC emitters, lean ones produce excessive NOX.

"TORKER"

1. RPM range for which manifold is primarily designed to produce most substantial power gains: Just off idle to about 6500 rpm.

2. Street (and recreational or trailer towing) vehicle manifold for engines using high gear ratios (2.7-3.5, etc.) where torque improvements are needed below 3500 rpm. Good race car manifold design for heavy vehicles using small displacement engines or engines equipped with 2-bbl. carburetors.

3. Primary feature of Torker is significant torque increases through use of good fundamental mixture distribution and very high mixture velocity.

4. The Torker is equally at home with both original and performance type carburetion (sometimes requiring simple adapter plate). A slight jet change is sometimes required to restore air/fuel ratio balance to level before Torker installation, correctly jetted engines frequently show fuel mileage improvements by as much as 1.5-2.0 mpg.

5. Much higher air/fuel mixture flow rate than that of TM-1. Port runner entry changes and plenum floor elevation combine to boost stream speed by almost 40%!

6. Distribution characteristics (in terms of exhaust emissions) are similar to TM-1. Higher velocity of Torker further reduces opportunity for air and fuel to separate.

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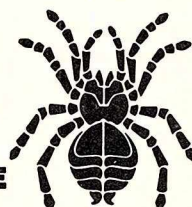
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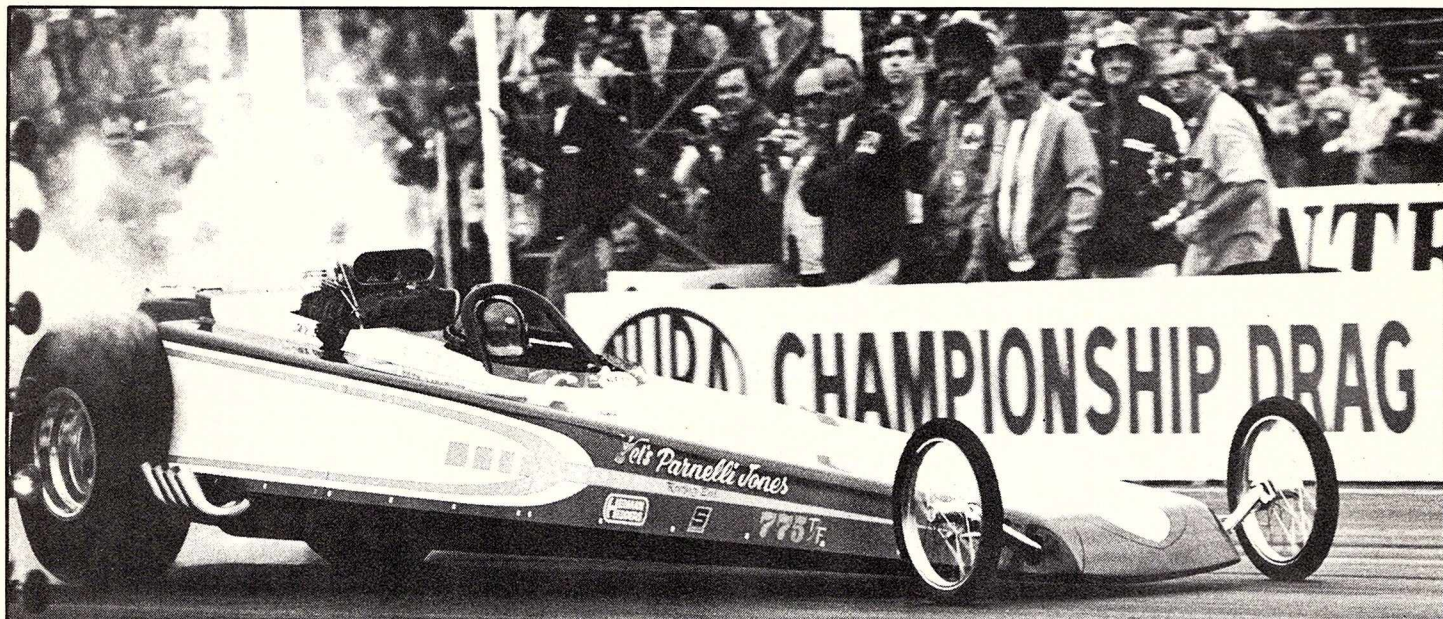
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WHERE GREAT IDEAS TAKE SHAPE
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The Dragsters have once again become the Kings of the Sport. Since Don Garlits started the rear (mid) engined revolution, the lethargy has left the fuelers. Elapsed times are dropping and new cars are constantly being built. Elapsed times in the 5-second bracket are becoming a distinct possibility and speeds of 240 are not far off. In this special section, we've assembled some information and photos that will help you keep up to date on the Dragster revolution and, hopefully, will give you a few moments of enjoyment.

DRAGSTER REVOLUTION



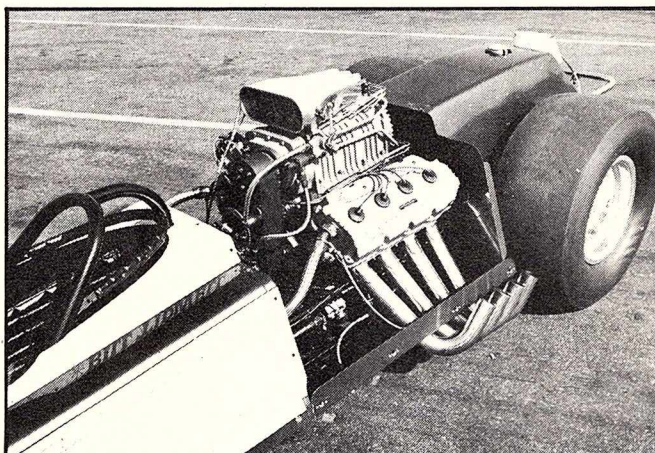
WEDGE WITH NO CORNERS

Indy technology helped build this radical dragster

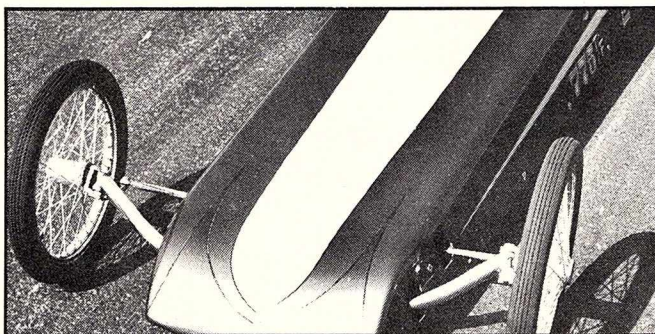
Vince Rossi's "rounded wedge" is one of the more unusual dragsters to debut in the past few months. The chassis was built by Roy Fjastad of Speed Products Engineering, and the body was designed by Roy with the help of some of Dan Gurney's aerodynamicists. Tom Hanna executed the immaculate body.

The idea behind the configuration is to let air trapped under the car escape by flowing freely around the rounded lower section. Gurney's Indy cars used the same technique with success in the past few years.

The car, which is being driven by Bill Tidwell, is still undergoing preliminary testing but has already run 6.6's. A 470ci Keith Black engine powers the impressive mass of the striking dragster, and silver-haired Jack Ewell has been exercising his legendary prowess in tuning it. 



Dzus fasteners make panel removal a snap. Keith Black hemi has a 470-inch displacement. Jack Ewell runs the engine department.



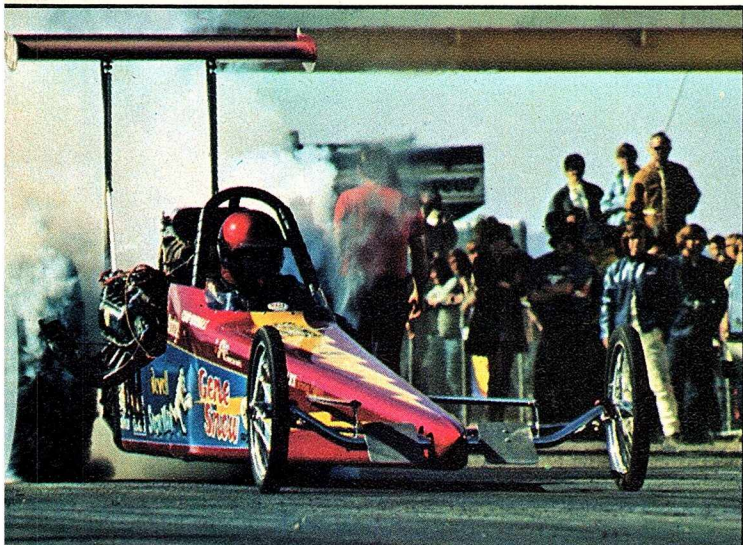
Blunt nose pushes air up and over flat nosepiece to force car down at speed. Wide body gives car massive but unique appearance.



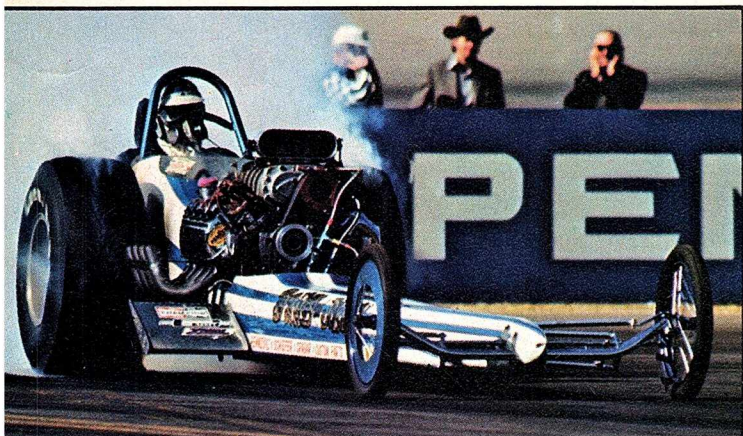
PHOTOS BY JEFF TINSLEY

DRAGSTER PICTORIAL

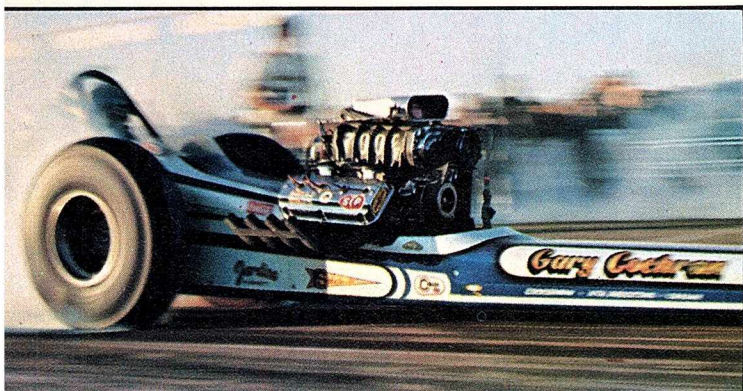
PICTORIAL



Young Chip Woodall ran a 6.46 on very first run in Gene Snow's digger.



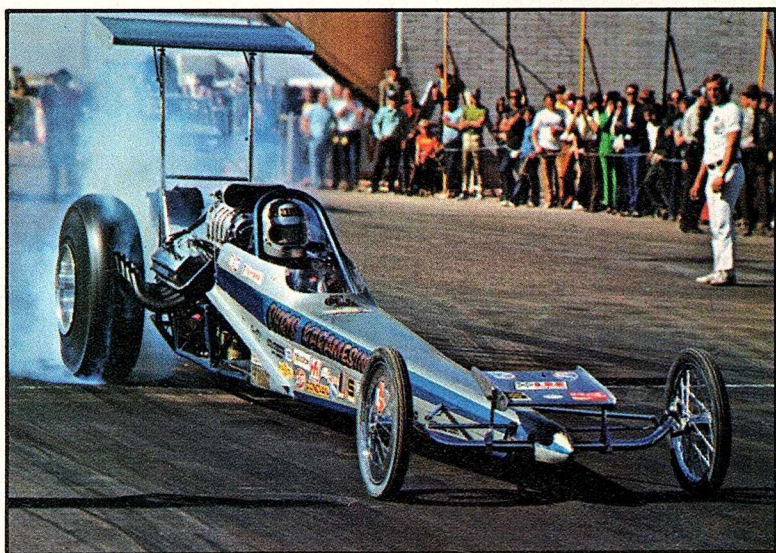
Supernationals victors Daley and Johnson proved slingshots still win.



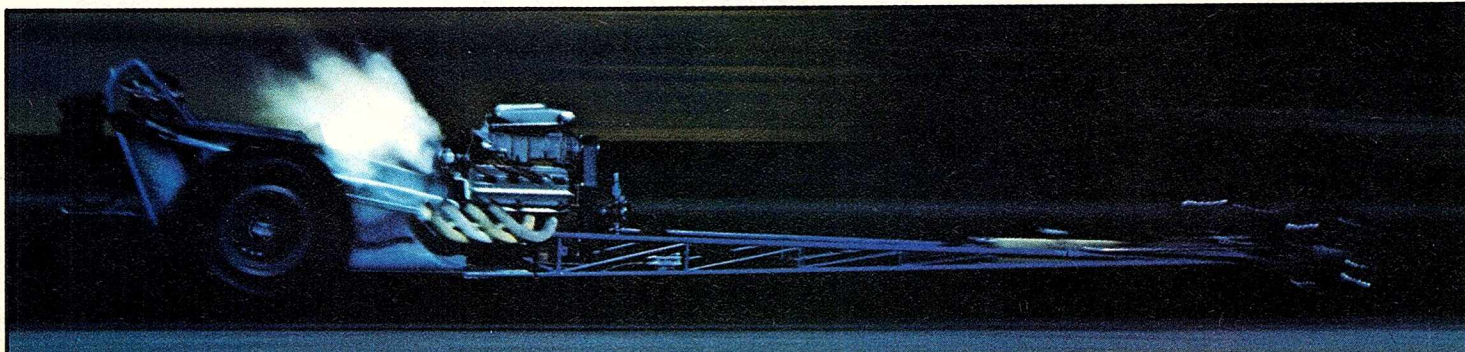
Gary Cochran will challenge the back-motored cars this year on tour.



Super-showman Tommy Ivo updated his act with swoopy new car.



Chris Karamesines started out with wedge car, stripped it to save weight.
BELOW—By the end of the year the dragsters will be going by at 240.



PHOTOGRAPHY BY:
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Charley Marquez is one of the holdouts still running a slingshot.



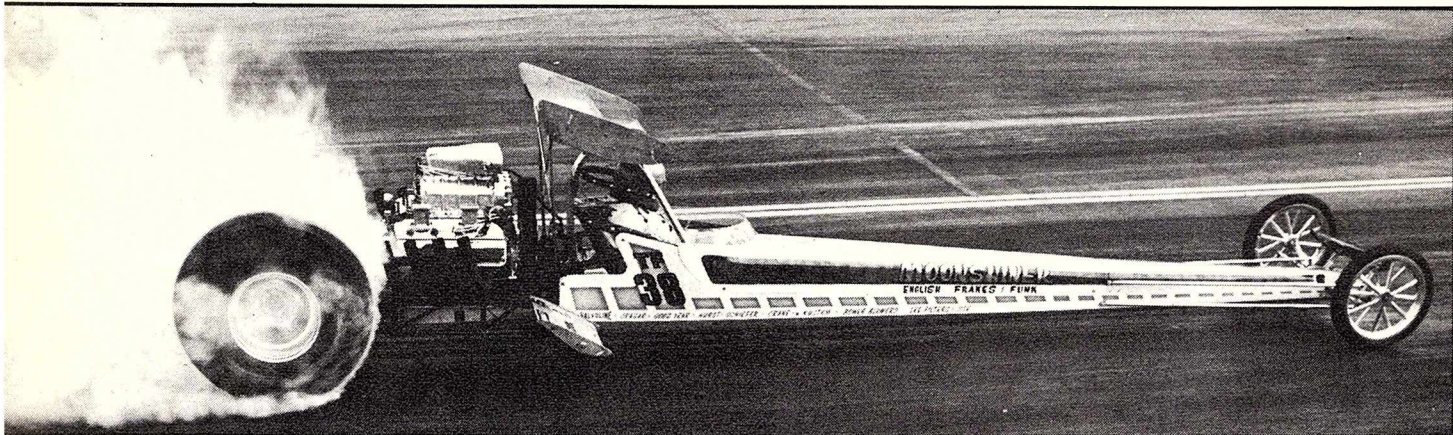
Clayton Harris astounded drag racing by putting together four 6.2's.



ABOVE—Kenny Goodell always runs striking cars, his wedge is no exception. The design is controversial and many have abandoned it. Tom McEwen's entry for the rear-engined ranks has a Garlits chassis and Ramchargers motor. "The Goose" will be running it at major meets.



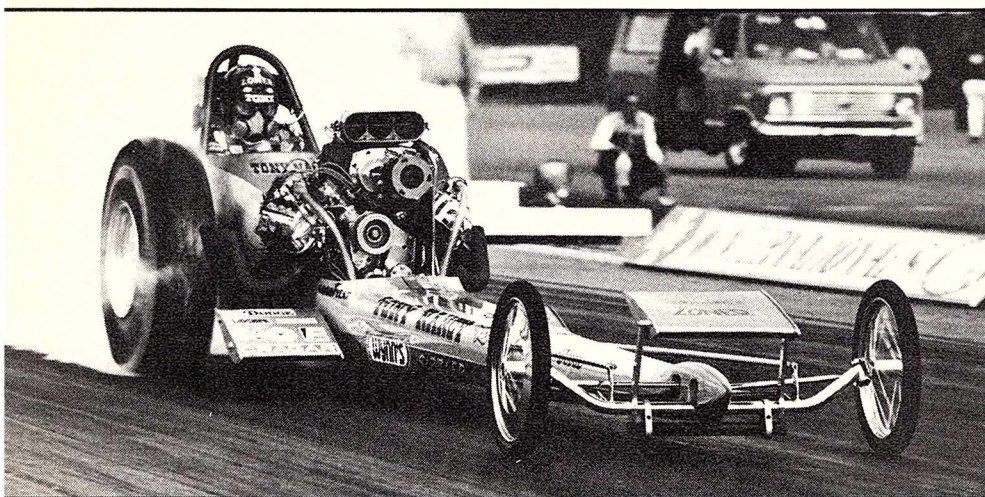
PICTORIAL



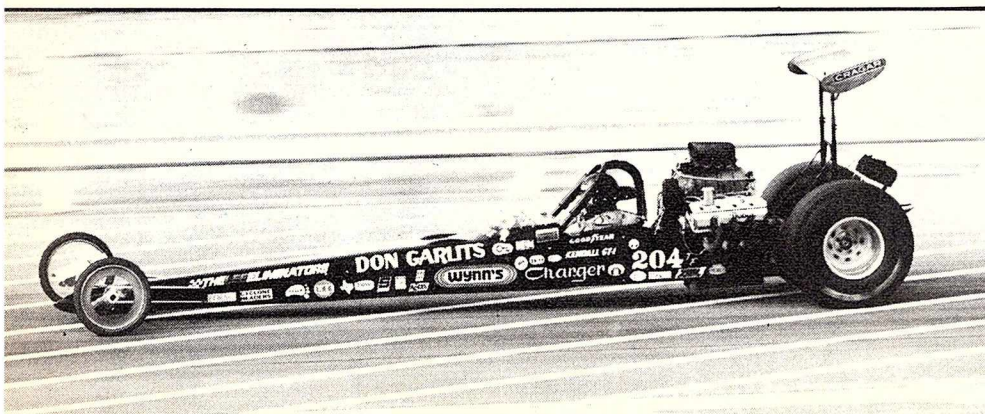
Dale Funk made impressive transition from Top Gas to Top Fuel. Late hemi power should put Funk & Frakes team in contention.



Randy Allison powers through traps while getting healthy push from one of Sid Waterman's Chryslers. Tire distortion is normal.



Tony Nancy is known as "The Loner." He's sticking with his slingshot and running 236.



ABOVE—Dennis Baca shows off the new uniform of the Top Fuel Dragster driver.

LEFT—The man who started it all breezes through on another 235-mph pass.



Meet the Borg-Warner Racing Team.

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Ignition parts: good to 8500 rpm and more...used in 80% of NASCAR's Grand National cars.

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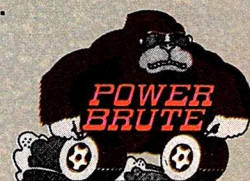
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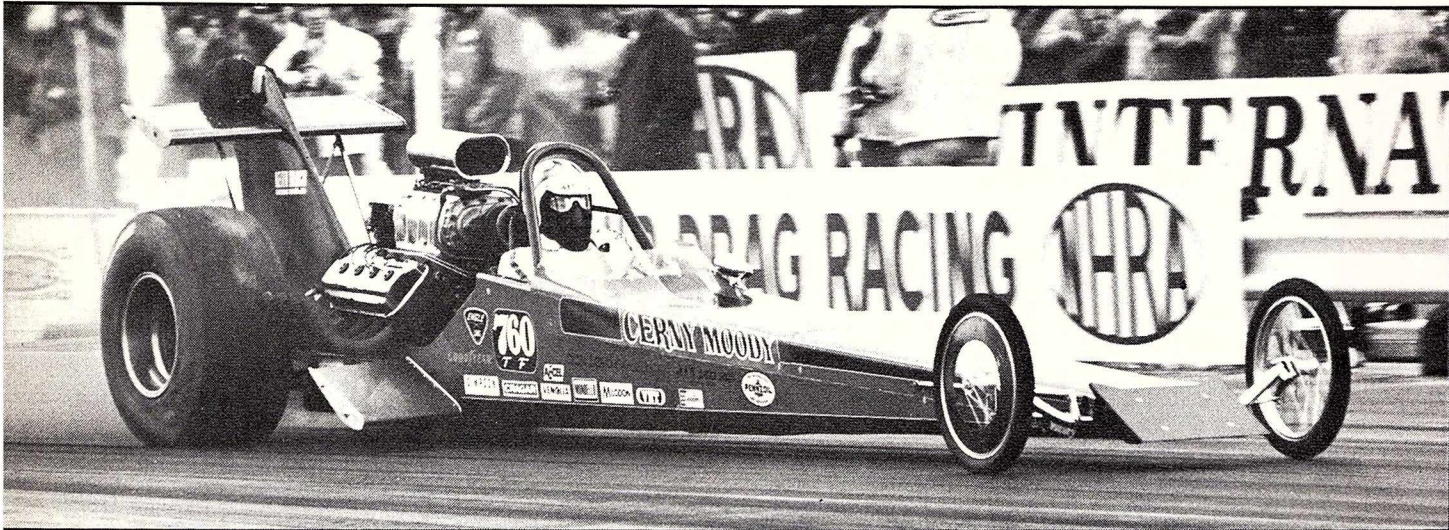
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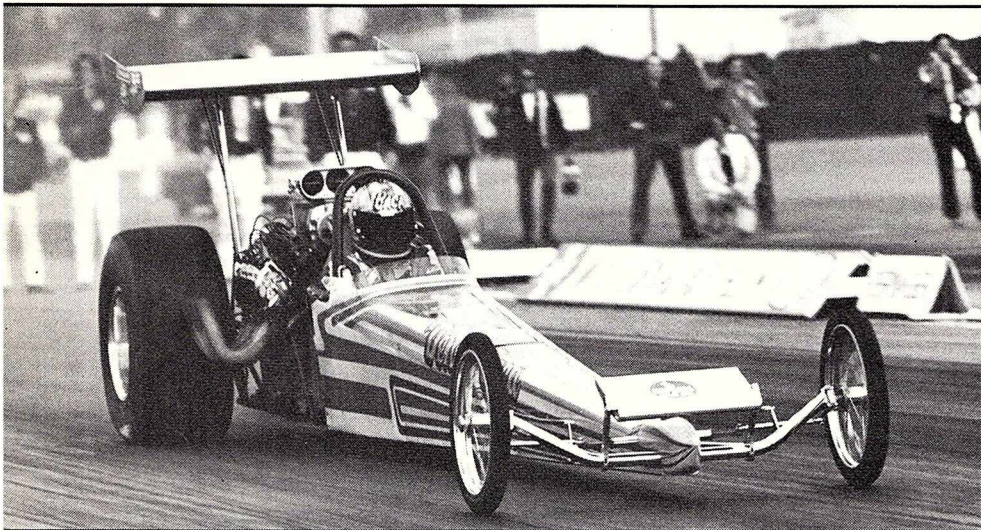


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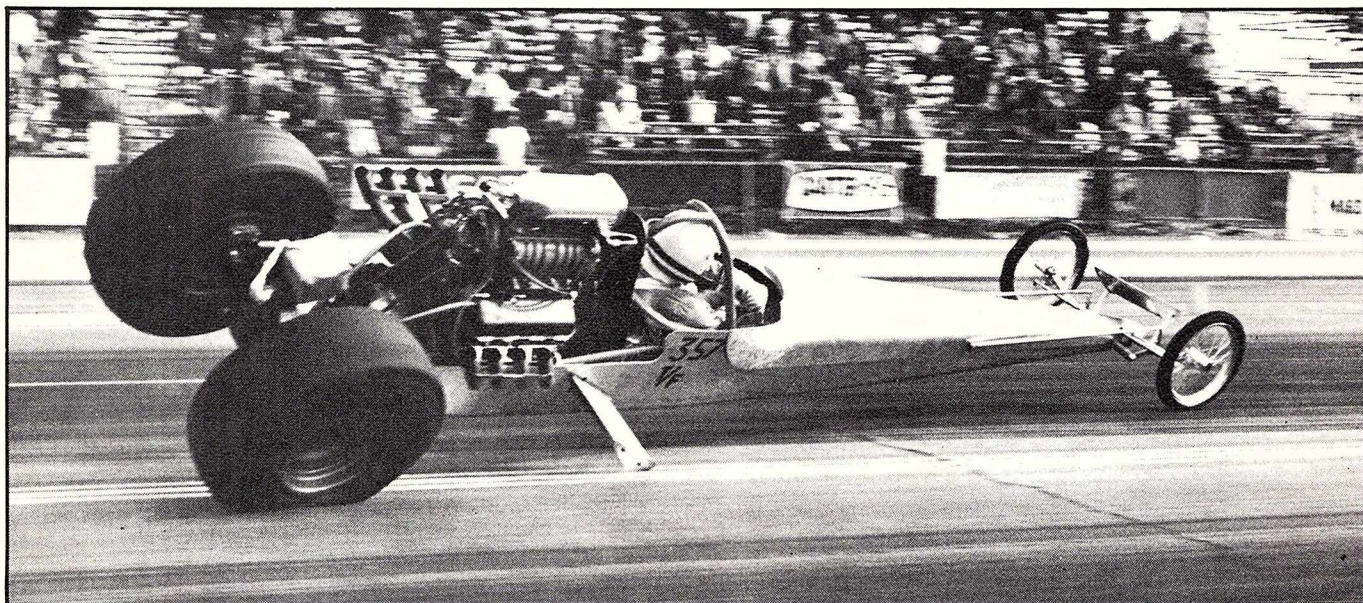
The Cerny-Moody car is one of most distinctive of new breed. Builder Don Long added wing as aid to quick chute deployment.



After suffering setbacks, Dennis Baca sorted out his car and is becoming tough to beat.

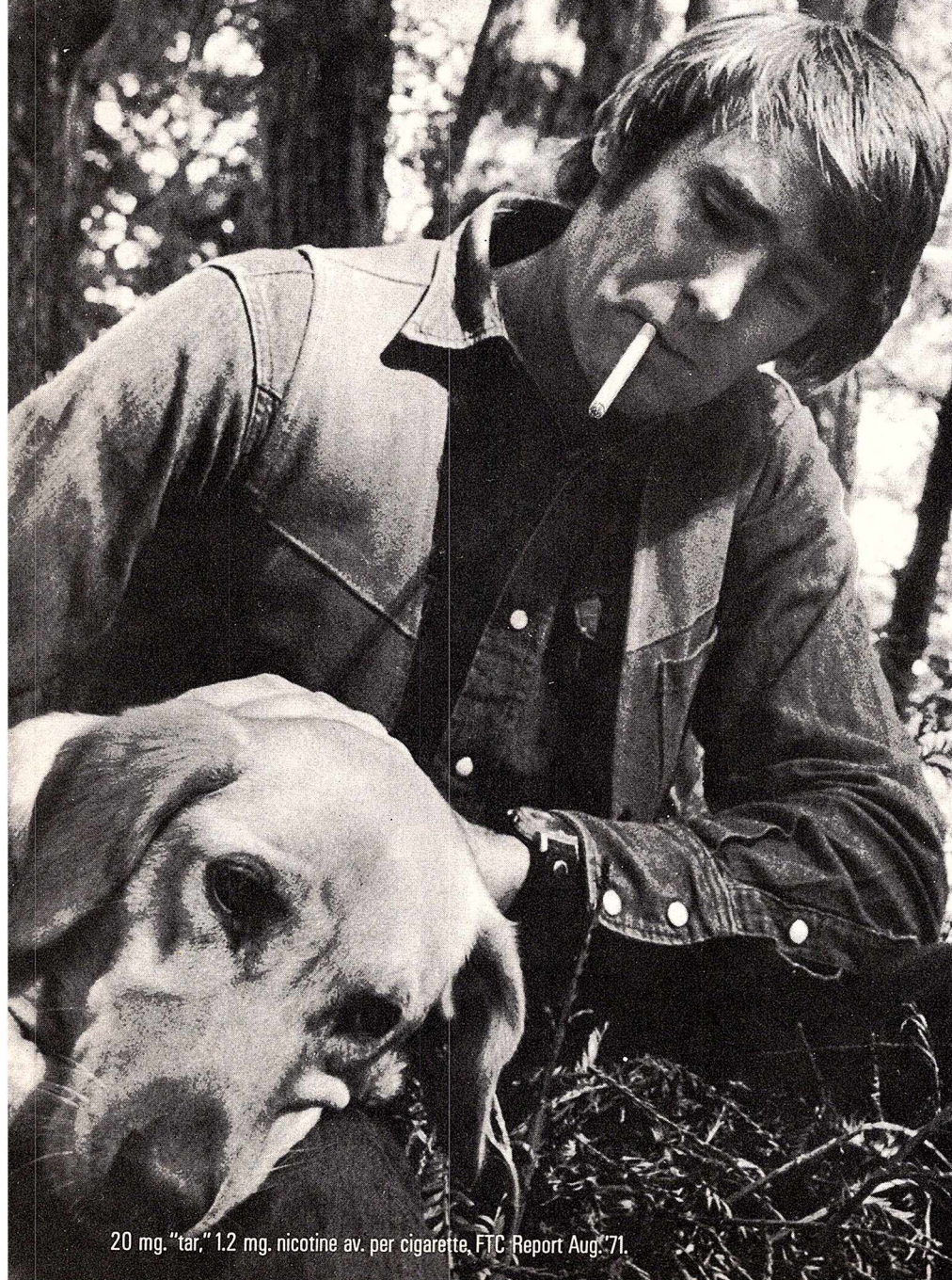


Ivo the spaceman gets ready for another run in new, immaculate, winged car.



Jim Bucher found Top Fuel racing different from Top Gas. Chevy-powered car went over at Winternationals, but damage was light.

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When it comes to
drag racing,
for the Allens...

IT'S A FAMILY AFFAIR

**DRAGSTER
REVOLUTION**

BY FRED M. H. GREGORY ■ "Little league baseball and football kinda' ran out for us." That is the reason Betty Allen gives for taking her three boys to the drag races in 1964. She and her husband, Guy, thought that it might be fun for the family to get into racing. "We didn't like it at first," Guy adds. But before long, the family got the urge.

"We were hesitant about getting a race car," Guy says. For one thing, he didn't have an inkling of the skills required to make a car run. Guy Allen is in the contracting business of running pipe and tubing in new buildings. He's tanned and lined from years of hard work in the sun. There's none of the middle-age flab on him that hangs off so many men. His job requires mechanical aptitude, but that's not the same thing as fine-tuning a fuel injection system.

Betty Allen, on the other hand, says there was no hesitancy on her part about getting involved with racing. "I fell in love with it." Betty is an enthusiastic, blonde bundle of energy who doesn't look anything like the mother of three grown, young men. And her young looks are more than matched by her progressive approach to her family and to the hobby that keeps them together. She feels that her sons should "do what they want to do." So when 15½-year-old Ed decided he wanted to drive a dragster, the Allens bought a small gas rail, little knowing that eight

years later they would be racing against, and beating, some of the quickest fuel dragsters in the country.

They fudged a little to get Ed past inspection because of his tender years. But with a little help from Tom McEwen—who was president of UDRA at the time—the Allens were soon up to their torque wrenches in drag racing. "Nobody told us what to do in those days," Betty recalls with a shake of her head. "We didn't even know enough to pull the pan and check the bearings," Guy adds. "We just ran the engine until the crank broke."

Ed, who is 24 now and a graduate student majoring in psychology at UCLA, was the first driver. It wasn't long before brother Les, just a year younger, demanded his own turn. The ensuing contest between the two brothers had built into a hard-fought sibling rivalry that lasted for years. Jeb, the kid brother, was only about ten years old at the time and couldn't care less about drag racing. He went along with the family when they raced, but didn't really like the whole thing until much later.

The little Junior Gas Dragster was soon replaced by a Junior Fueler. At that time, in southern California, Jr. Fuel was a thriving class. Many of today's Top Fuel drivers cut their teeth on the quick, little Chevy fuelers; Bill Tidwell, Bob Downey, Jimmy Igge and Don Enriquez, among others. Brother Les was doing the driv-

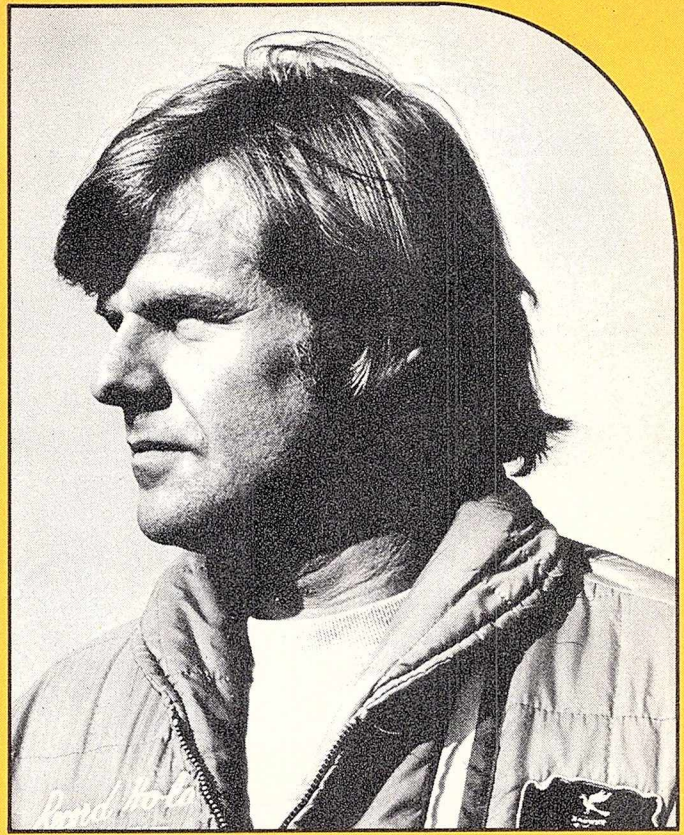
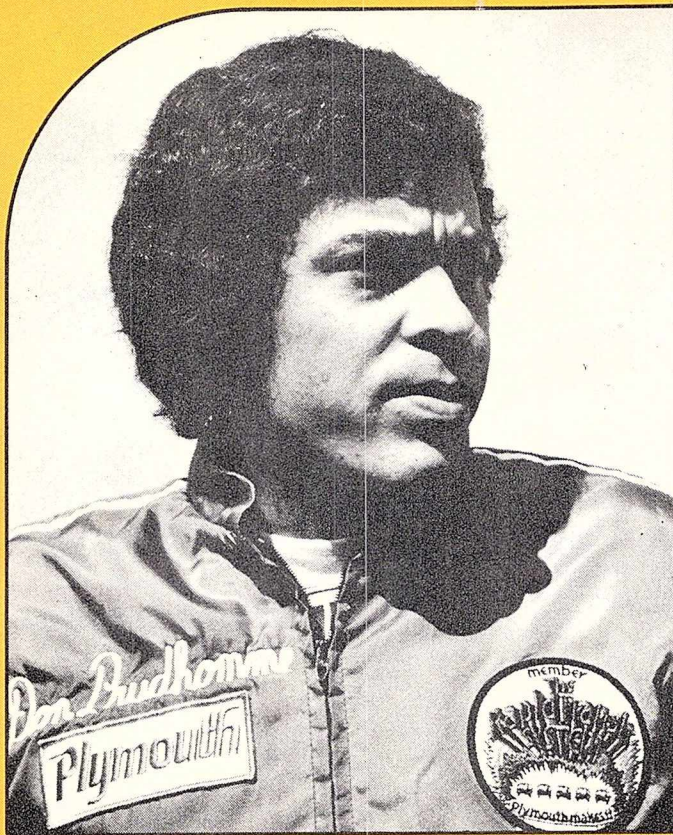
ing by then, while Guy and Betty were sharpening up their tuning skills. That they succeeded is demonstrated by the record; the Allens won 85 out of 88 races. In the process, they became a part of the racing scene, meeting people and making friends. Betty Allen fondly remembers the Junior Fuel period as, "the time we had the most fun."

But it wasn't enough. Winning dulled the challenge and challenge is one of the prime motivations of the Allen family. They decided to race in Top Fuel. In terms of money, work and pressure, the difference between Jr. Fuel and the big cars is like the difference between playing football and watching it. "We heard it was all dog-eat-dog in Top Fuel," Betty says, "but it wasn't true. We met some of our best friends there. People like Roger Coburn and Gary Cochran." And, she doesn't hesitate to add, "they helped us a lot."

Les Allen drove the "Wasp," a yellow Woody slingshot with some success. Their record was not as impressive as in Junior Fuel, but on the southern California Top Fuel circuit the Allens began to enjoy a respectable reputation.

By this time, young Jeb was becoming more and more involved with the race car. "I used to think there was as much challenge in building the engines and doing the mechanical work on a race car as

(continued on page 118)



FIVE SECONDS NEXT

**DRAGSTER
REVOLUTION**

DON PRUDHOMME AND JOHN WIEBE ran the quickest side-by-side drag race in history at the Lions Grand Premier Race in January. The two met in the final. Prudhomme got out of the hole first and kept his advantage. He recorded an elapsed time of 6.174 and a speed of 235.60 as against Wiebe's 6.175 in a slightly faster 236.22 mph.

The interesting thing about the race, aside from the incredible times, was that both cars are the latest examples of Dragster design. Prudhomme's "Yellow Feather" encompasses all the most up-to-date features of the mid-engined fueler, and Wiebe's slingshot is the ultimate version of *that* configuration.

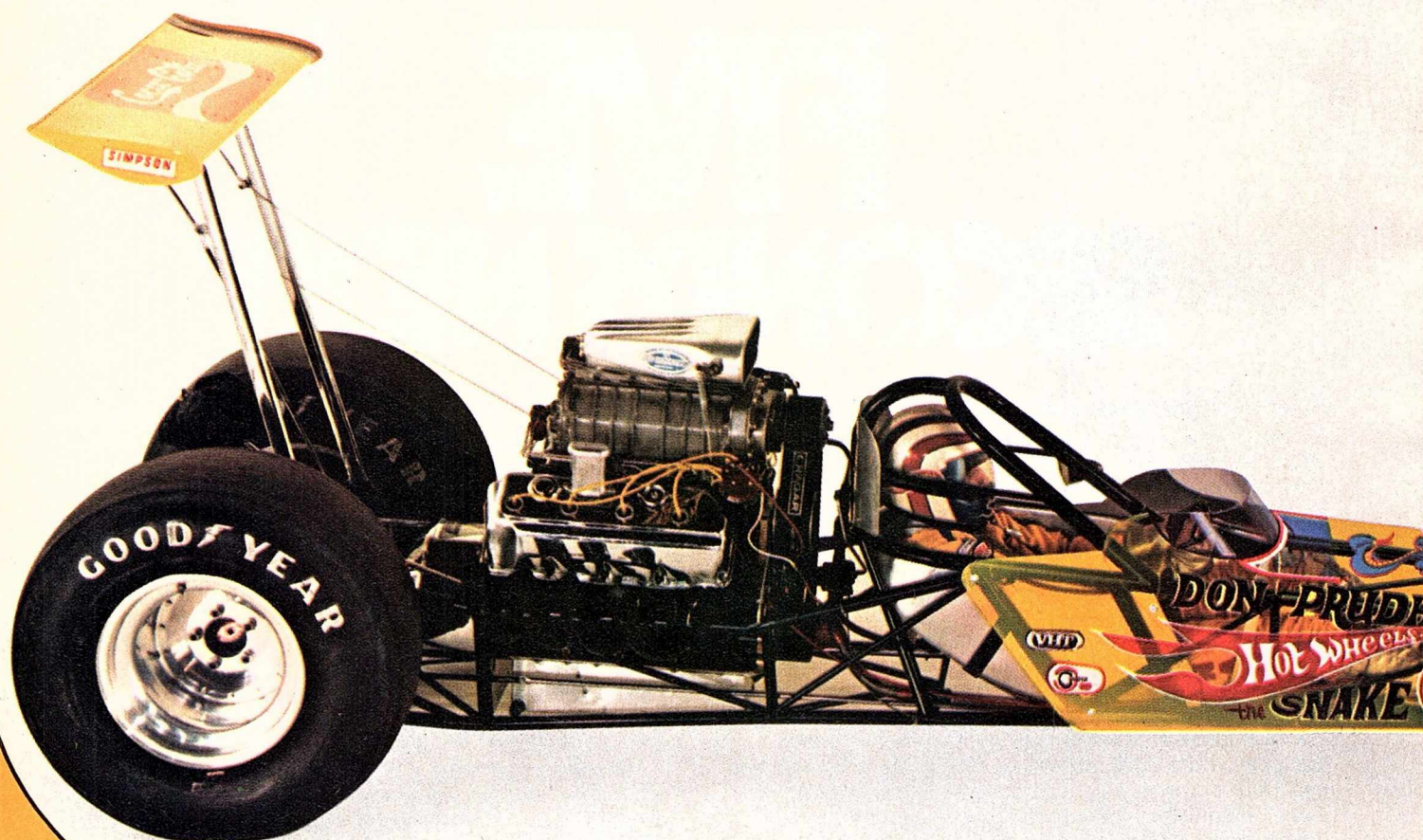
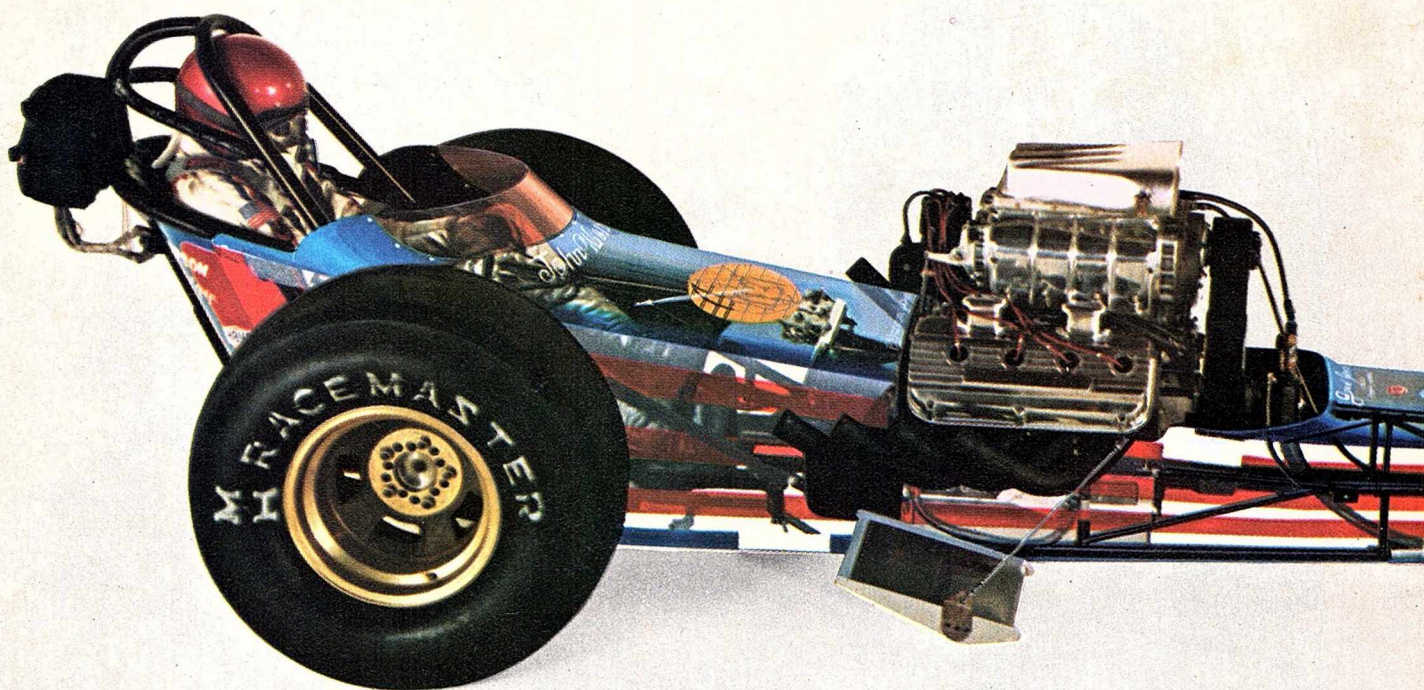
Prudhomme's car was built by Kent Fuller and is designed to be light, above all. Ready to race it weighs just 1260 pounds. This was accomplished through the use of magnesium body panels, acid-dipped block, hollow bolts, drilled gussets, and aluminum heads. Attention to every detail was necessary to reach minimum weight without sacrificing safety. The roll cage meets SEMA specs and even has additional bracing. The wheelbase is 225 inches; the 480-inch Keith Black motor is back as far as it will go, and downforce is provided by airfoils front and rear.

Wiebe's car was built by Speed Products Engineering and is a bit heavier than Prudhomme's (roughly 1400 pounds). Its most noticeable feature is the Donovan 417 engine. Wiebe is the first to run the motor and has experienced considerable success with it. To eliminate the use of ballast on the front, the rearend was moved back in the chassis. This increases the distance between the centerline of the rear and the engine, thereby placing more of the car's weight on the front. Wiebe's car has a wheelbase of 186 inches and utilizes small canard wings mounted alongside the engine to exert downward pressure at speed.

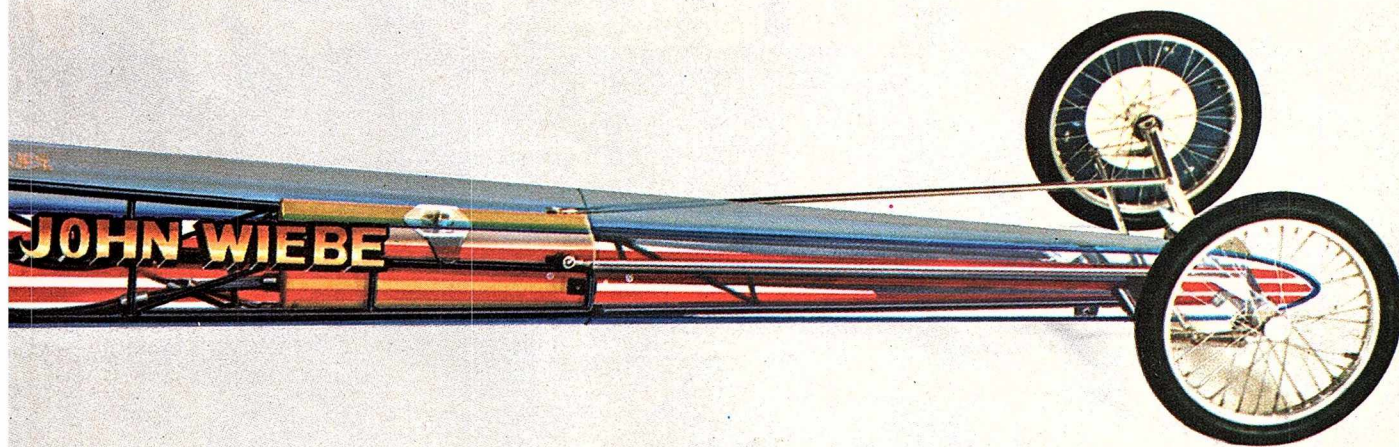
On the next two pages you can plainly see the differences as far as chassis design is concerned.

We fully expected the 6.17 times to stand for quite a while, but Clayton Harris managed to shave the figures down to a 6.16 (see Elapsed Times). Prudhomme, in the meantime, has been putting his car through extensive testing and Wiebe is experimenting with airfoils and a lighter configuration. All this just goes to show how quickly the Top Fuel Dragsters are progressing and how much activity there is. At the rate the top competitors are going it wouldn't be surprising if, by the time you read this, the 5-second barrier is broken.

TURN PAGE FOR COMPARISON PHOTO-ILLUSTRATIONS

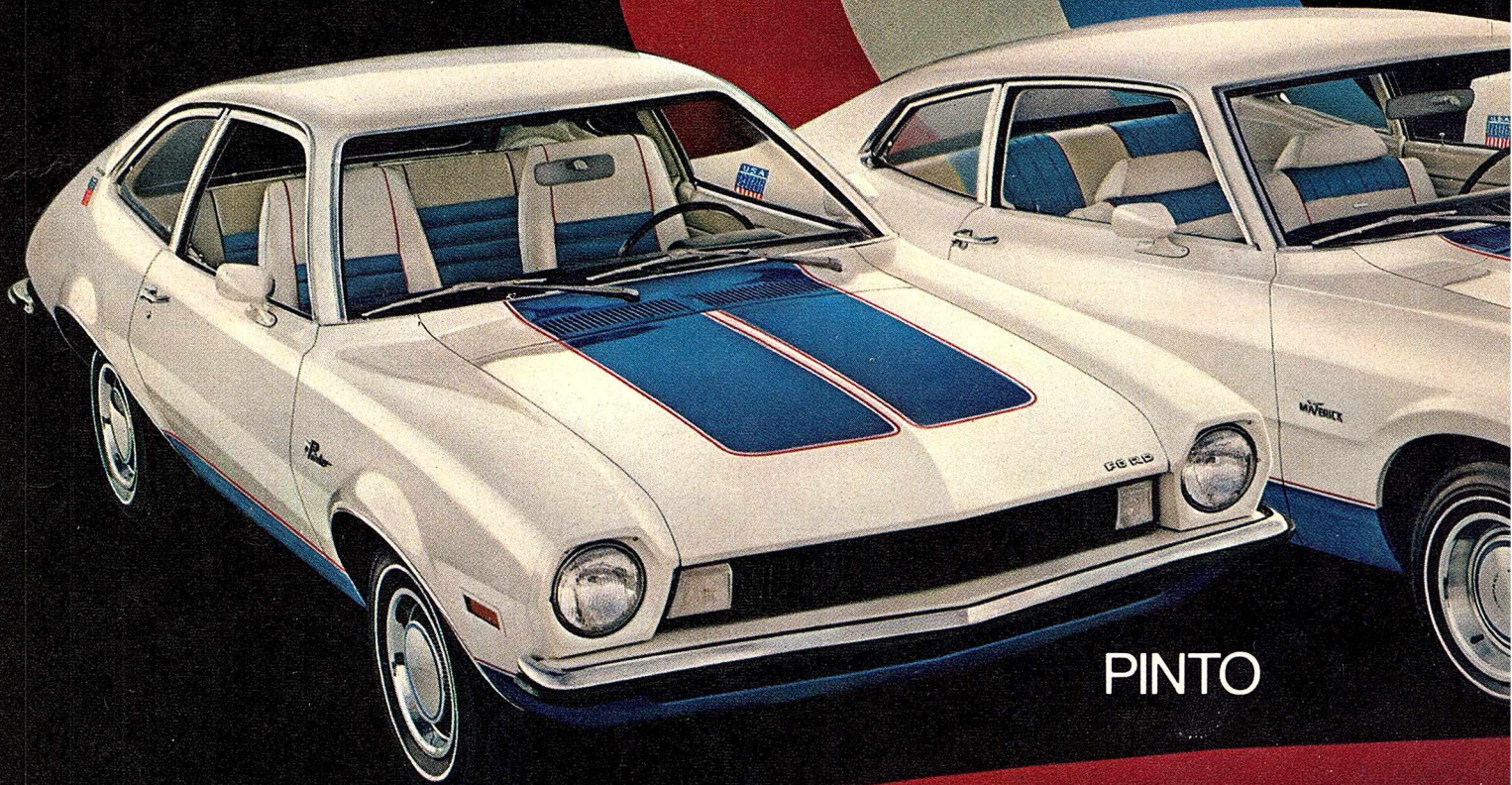


car craft showcase



A unique photo/art technique was used to illustrate the obvious—and not so obvious—differences between the two quickest cars in drag racing. John Wiebe's car (above) is the latest example of the traditional slingshot dragster approach and Don Prudhomme's "Yellow Feather" (below) reflects the latest thinking in rear engine cars. Both are constantly undergoing subtle changes and revisions in the never ending pursuit of quicker times and faster speeds.

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Major Cooksey's secrets don't really come from a bottle; years of experience and precise assembly procedures are his panacea.

TEXT AND PHOTOS BY JON ASHER

■ Jammed in between T&S Motors (Lost Your Credit? Find it Here!) and the Triangle Cleaners is the old building that houses Irving Speed Shop in the little town of Irving, Texas. At first glance the place has the appearance of a minor junkyard, but within the confines of that building works a man and his son who have changed drag racing within the past six months. Don Garlits has spent a considerable amount of time with the fifty-year-old proprietor of the shop, Major Cooksey, and has absorbed a great deal of e.t.-improving knowledge from him.

During the second week of October, Big Daddy banged out a letter to Cooksey that recently appeared in a number of national advertisements. The letter, totally unsolicited, has some strong statements in it: "Just a note to let you know what a great job you did for me in the past season. It almost seems like a miracle that I ran into you." That's strong for Garlits, right? It gets stronger. "Let me say I was about to give up on the Mopar rear, but you certainly gave it new life—we still break them, but I know I can get fifteen to twenty good runs on one. Then there is the 'Controlled Valve Float Idea,' I know it added 4 or 5 mph on my car."

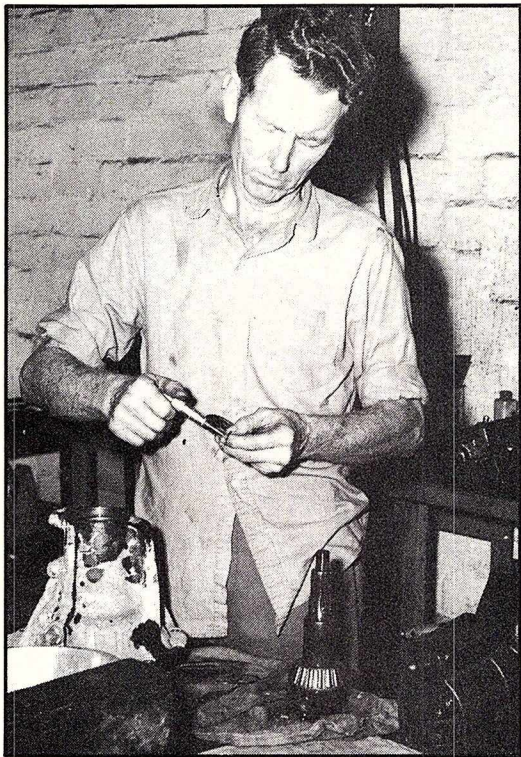
It would seem that Cooksey might have suddenly stumbled onto something, but in truth, he's been working on this theory for over four years. His total racing experience stretches back to 1926 when he began thrashing roundy-round tracks with Model T Fords. Never a driver, Major Cooksey



**DRAGSTER
REVOLUTION**



Wayne Cooksey works out on one of many Chrysler heads that come through the little shop in Irving.



Major Cooksey's reputation for setting up rearends is such that they are shipped in from everywhere.

(his given name), has always been a mechanic. Much of his experience has been passed along to his twenty-four-year-old son Wayne, who is partially immobilized by a rare blood disease. Wayne is rapidly becoming the expert that his father is, and definitely has the urge to drive. His 1965 Dodge Coronet is the local Dallas/Fort Worth area e.t. bracket "killer car."

Through the years, Cooksey spent his time on cylinder head and rearend work for his stocker and Super Modified friends. It was Wayne who introduced Major to drag racing, and those first races he witnessed were filled

with fires, blower explosions, and erratic-handling machines. Major felt that he already had the answers to many of the problems the guys were experiencing. He went to work in earnest and in the past four years his work has paid off for more than one Lone Star State drag racer.

When Major first began doing head work for dragsters, he began to loosen the valve spring pressure on the intake valves in the interest of driver safety. It's taken him years of strip-side experimental work to make his theory work, and like a Keith Black or Ed Pink with a new engine secret, he's most reluctant to divulge specific information to anyone, although he has worked on the theory with Garlits.

Major's valve work consists basically of precision placement of the valve seats and "controlled valve float" through specific spring pressures.

Cams coming from a manufacturer arrive with specific settings for both seat pressure and spring height, but Cooksey doesn't recognize them at all. He feels that this is the "old way of doing things." He feels that all of that is simply wasted information, because once the valves begin to float, due to high rpm's, the entire chart supplied by the manufacturer can be thrown in the garbage.

"By controlling specific valve spring pressures you can control the amount of flotation, and you can control the amount of valve movement with those same specific valve spring pressures." During his early experimental work, Cooksey has had valves hit pistons, and each other, never with any serious engine damage. That in itself is almost unheard of.

With Major Cooksey's head work the valves do not bang closed on the seats, nor do they stay open at all times, due to the top of the cam lobe banging the lifter back up each time it rotates. The valves close with each revolution of the camshaft, but they close late, extending the duration of the cam even further.

In order for the cam manufacturer's duration chart to be followed, the spring pressure must be extremely stiff, and Cooksey feels by following the chart the engine builder gets into trouble. Once the valves start floating, even a minute amount, the cam grinder can't give you even the slightest idea as to how the power curve is dropping, although they know that it is, and dramatically. With Cooksey's loose valve springs the power curve remains constant throughout a quarter-mile run.

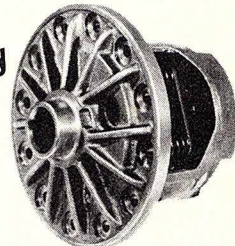
Cooksey sets his spring pressure with each valve standing wide open on a test bench. After levelling the spring decks on the heads, he adjusts the spring pressure in a number of ways: shims, cutting the spring decks, pressing them, or by heat treating.

(continued on page 81)

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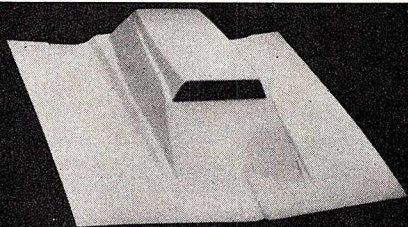
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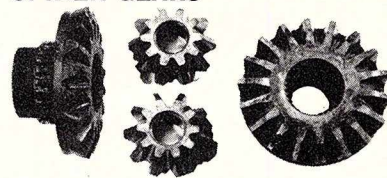
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**DRAGSTER
REVOLUTION**

Playing with Blocks

Donovan started it and now Milodon and Black are entering the field with aluminum blocks for drag racing

TEXT AND PHOTO BY FRED M.H. GREGORY ■

Most all-out drag racing engines began their lives in sedate family cars and wound up, through the circuitous route of junk yards and engine rebuilding shops, in fuel Dragsters. In the mid-Sixties, Chrysler resumed production of their hemi engines and another source was opened up for motor procurement. Even so, the racer was always dependent on Detroit for his supply of motors. And since the 392 and 426 engines were designed to operate in a street-driven car, the racer had to contend with inherent flaws that made the hemis suitable for stock automobiles but resulted in vexing weaknesses when the



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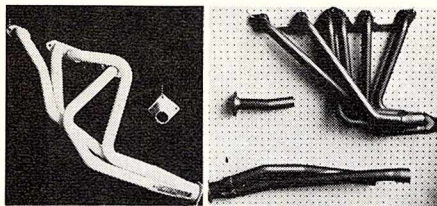
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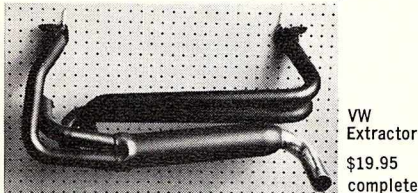


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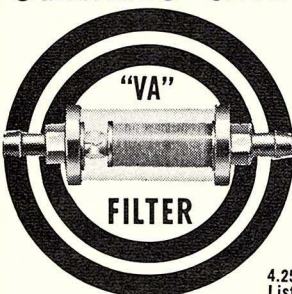
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PLAYING WITH BLOCKS

horsepower was increased five-fold.

Ed Donovan, whose company produces an excellent line of precision-machined components used in nearly every dragster, years ago began planning an engine that would eliminate the racers' dependency on Detroit and nullify the weaknesses encountered in the stock blocks. With the aid of his extremely competent staff, Donovan built and designed the Donovan 417 engine block.

Basically, it is a cast aluminum block that utilizes the components that go into making a 392 Chrysler engine. The block accepts the crank, rods, heads, manifold and accessories used in the early Chrysler hemis. Donovan's design eliminated the weaknesses encountered in the 392's cylinder walls by utilizing centrifugally cast cylinder liners that slip into the block. The engine also does away with lower-end woes through the use of a cast-aluminum, one-piece, main-bearing support. The webbing throughout the block results in a unit that far surpasses the 392 in strength and is considerably lighter.

Preliminary testing in John Wiebe's Dragster exceeded all expectations and sent skeptics and critics off mumbling to themselves. Before the Donovan 417 proved its mettle on the drag strip, many so-called knowledgeable observers openly scoffed at the idea, but it looks as though Donovan's 417 has begun a trend that is as significant as the advent of the rear-engined dragster. At the moment, Donovan's factory is in the process of machining the first production run of 25 blocks. Most of these should be in the hands of racers by summer.

Donovan's pioneering example has been the stimulus for others. At the present time, work is in progress on two other aluminum blocks being built by Keith Black and Milodon. Both are designed to use the components of the late 426 hemi.

The Milodon block will have wet sleeves similar to Donovan's and the main bearing support will be through the use of a girdle. A significant departure from Donovan's design is found in the oiling system. Milodon's bottom-end oiling is through the girdle and up through the lower half of the main bearings. The block will accept all late-hemi components. The Milodon design also incorporates heavier webbing and increased strength throughout the main web and valley sections of the block. Initial estimates are that there will be a weight saving of roughly 100 pounds over the stock block. Early

indications are that Ed Pink will be the one doing the preliminary sorting-out on the Milodon engine, once it begins rolling off the line sometime in the spring.

Not to be outdone, Keith Black is busily developing an aluminum block of his own. Like the others it will have removable wet sleeves, but instead of having a one-piece main bearing support, it will utilize individual aluminum main caps. The oiling system will be changed for improved racing performance and the blocks will accept all existing late hemi parts, including strokers, with no modification. A weight saving of around 100 pounds is expected. Black's engine is due in prototype form in May and should be available in quantity by August.

All of the aluminum blocks share some features. Among these are the easy replaceability of complete cylinders and, in the event of serious damage, simplified repair, because aluminum can be welded. The blocks can easily accept a water circulation system and can conceivably be run on the street. Although price structures have not been finalized, it is expected that complete blocks (including all studs, ready to assemble) will be in the 1700-2000 dollar range.

Compared to cast iron blocks this price is high. However, all the manufacturers are planning for the future. It is expected that Chrysler will discontinue the hemi before too long and the availability of the 392 will also decline as they are used up. Thus, in years to come, there will be no shortage of raw material for all-out drag racing motors.

Development is not going to end with just the production of blocks. Chrysler is, once again, turning out aluminum heads for the 426 engine. When coupled to an aluminum block they cut the weight of an engine by 200 pounds. A blown fuel cast-iron motor weighs roughly 720 pounds. This means that a dragster such as Don Garlits' or Don Prudhomme's (which weigh roughly 1300 pounds in their present configuration) would be able to come to the line at just over a thousand pounds.

As for the 392 engines, there are a few sets of aluminum heads made by Sharp (many years ago) floating around. Donovan is also working on the design for four-valve heads to go on his block. He feels that racing is expensive enough so he isn't rushing with the development of these exotic heads, but they are in the future.

In the long run, the development of these engines will mean that drag racing will finally have complete, specialized racing engines of its own, and will not have to depend on Detroit for a supply of powerplants.

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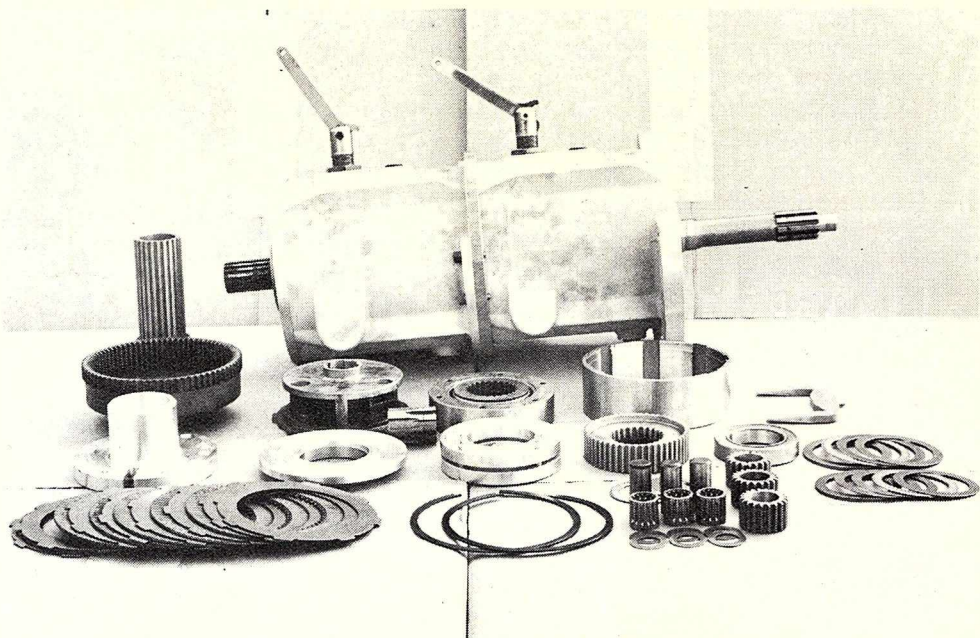


That's all there is to Lenco's new 3-speed transmission for unblown cars

Lately, more and more emphasis has been placed on Funny Car and Dragster drivetrains. Greater amounts of horsepower is taking a toll on components like transmissions, rear-ends and engines. Transmission technology alone has become increasingly sophisticated as car owners are continually pursuing the most compromising unit for their combination. Development, utilization, and eventual rejection are all part of the necessary process of dialing-in the correct power transmitting device.

First it was direct drive; high-gear-only units having one clutch and pilot shaft coupled directly to the rear pinion. Overdrive transmissions entered briefly into the pictured until racers grew weary of the broken parts; these were run with excessively low gear ratios (5.13:1 and numerically higher) which caused

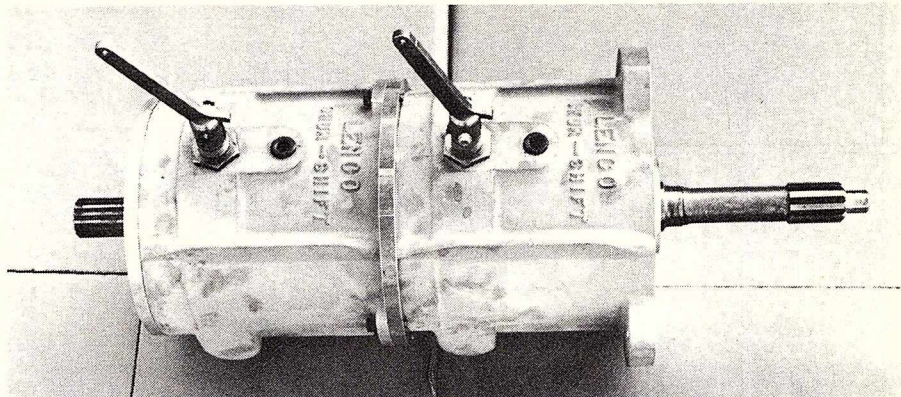
1-2-3 SHIFT



unusually high pinion speeds and abnormal gear deflection, forcing the use of quick-change rearends. Then there were (and in some cases, still are) full automatics, clutch-flites, and underdriven 2-speed automatics like those out of San Diego's Lenco Racing Transmissions.

An underdriven 2-speed has its front ring gear connected to the input shaft and a planetary gear tied into the output shaft. A sprague keeps the center sun gear from rotating backwards, giving a constant drive to the output shaft. Shifting is accomplished by a lever which applies clutches to lock all of the gears in direct or final drive.

The newest product from Lenco is a 3-speed "fully mechanical semi-automatic" transmission. It's actually a pair of underdriven 2-speeds coupled together, incorporating twin planetary assemblies. Since each section is a separate entity, they are not dependent on one another to shift. In the event one gear breaks, the remaining gears would continue to be operative. The 3-speed's torque multiplication



Lenco semi-auto 3-speed was designed for unblown cars needing broader power curve.

(2.10:1 first gear, 1.45 second, 1:1 third) is too great for a big blown car, thus making it ideally suited for normally aspirated (unblown) funnies, diggers, and some small cubic-inch supercharged gassers. Because of the gear spread, lesser amounts of horsepower are needed to make it work, and these cars are allowed to stay in their power curve longer.

Several of the Lenco 3-speed's attributes are its 90-day guarantee, lightweight yet bulletproof construc-

tion (even with a reverser, the 3-speed is 14 pounds lighter than an automatic; made from Hy-Tuff 8620 stock), and its e.t. advantage from not disconnecting between gears.

Each 3-speed may be ordered with a reverser, ready to run from Lenco for \$1650, racer's net. And they have a 4-speed automatic in the works for Pro Stockers and Modified Production cars. So, if you're a door slammer or a spoker, there may be a Lenco transmission in your future. ☺

A good woman never hurts.

When Lynn and I got married in 1963, I owned a '56 Buick with a tuck and roll job, candy paint, and a super-trick engine. I mean it was beautiful. One morning I went out and sold it, and that afternoon I towed home my new car. A '27 Ford coupe with no engine. When I rolled into the driveway, Lynn asked, "Where's the Buick?" "Sold," I said, "I'm turning this into a dragster." She kind of smiled and said, "You sure do like cars."

A couple of years later, when I decided to stop being a weekend dragster, turn pro, and drive full time, I wondered how Lynn would react. You know what she said? "We'll manage." I had a good car—Roland Leong's fuel dragster—and a good record. My biggest concern was how we'd get along financially. In '65, drag racing wasn't the major sport it is today. You couldn't earn the same kind of living a guy can earn now—especially when most of your expenses came out of your own pocket. So I told Lynn it was going to

be tough for a while. And I was right. It was really tough. But Lynn was right, too. We managed.

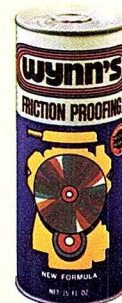
In the next three years I did lots of winning, very little losing and drag racing became a big-time thing. So in '69 I decided I wanted to build and race my own car my own way. What that required was a sponsor, something I hadn't had before.

I knew Wynn's sponsored the best drag racer around, Don Garlits, so I approached the Director of Racing and explained what I wanted to do. A couple of days later he called and asked me if I was sure I could handle it. I said, "Yessir, in a Chinese minute." When I told Lynn I had my first sponsor, she gave that smile again and said, "What are we waiting for?" We had a celebration you wouldn't believe.

Wynn's decals are still on my cars. Because Wynn Oil Company has been a good sponsor. One of the best. And I use Wynn's products. I put their New Formula Friction Proofing® in my fuel dragster and in

my funny car to protect the bearings. And I put it in my family car. A Cad Eldorado. Because I know it helps reduce friction and wear. But I want you to know that I'm not obligated to use anything. If Wynn's products weren't as good as they are, if they didn't help my cars' performance, I guarantee I wouldn't touch them.

After all, I've got a good woman who wants me to keep on winning. And that never hurts.



I'm keeping this one with...



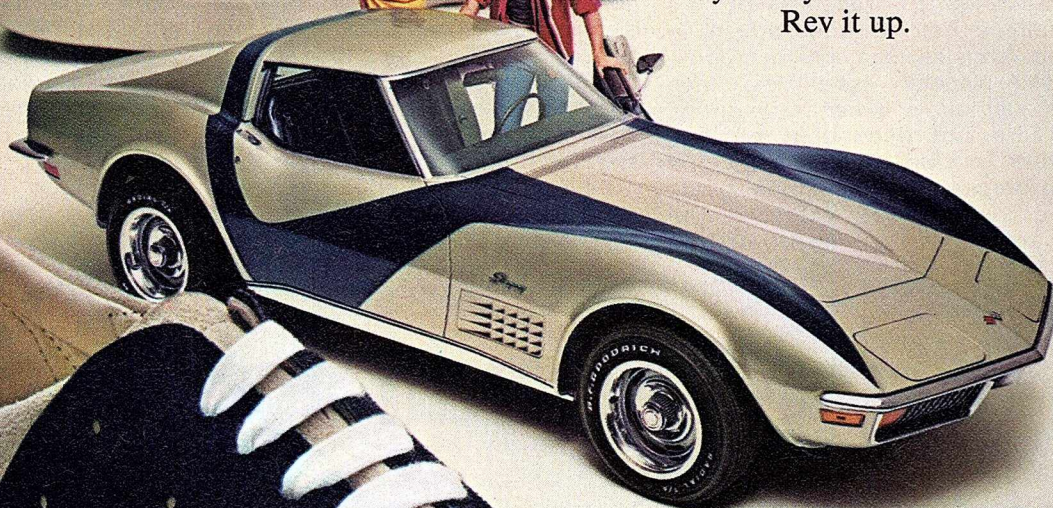
Wynn Oil Company proudly sponsors the champions: Don Prudhomme, Don Garlits, Tom McEwen, Tony Nancy, Lloyd Ruby and the Wynn's Courage of Australia, world's fastest and quickest 1/4 mile rocket dragster.

Guess what inspired these new shoes.

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Get it on.

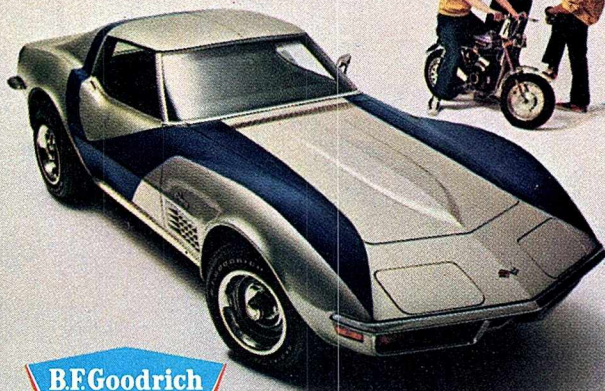


Win a Custom Corvette inspired by guess what?

Stop at your Purcell Footwear dealer and pick up a free entry blank for the **High Performance Sweepstakes**. The rules are easy. No purchase required. First prize is a 1972 Corvette. Eight second prizes are Rupp Roadsters/2 Mini-Cycles.

Official High Performance Sweepstakes Rules.

1. Complete the entry blank and deposit with a participating Footwear dealer, or print your name and address and age on a 3" x 5" piece of paper and mail to: **High Performance Sweepstakes**, P.O. Box 6266, Chicago, Illinois 60677.
2. Entries must be deposited at your local participating footwear dealer before the end of his individual promotion or mailed to the address above by midnight, September 1, 1972, and received by the judging organization by September 8, 1972.
3. The winner of the Corvette or the Mini-Cycles must furnish written authority and release from their parent or guardian before delivery can be made. Sweepstakes open to boys and men up to age 25 only.
4. Winners will be selected in a random drawing conducted by H. Olsen & Co., an independent judging organization whose decisions are final. No correspondence will be entered into. All entries become the property of B. F. Goodrich Footwear Company.
5. Sweepstakes void in Georgia, Idaho, Missouri, Washington, and wherever prohibited, taxed or restricted by law.
6. Prizes must be accepted and are nonredeemable for cash. No substitutes for prizes as offered. Only one prize per person per household. The odds of winning will be determined by the number of entries received. All 9 prizes will be awarded.
7. Local, state and federal taxes, if any, are the sole responsibility of the winners.
8. Sweepstakes open to male residents of the Continental United States only up to age 25. Employees and their immediate families of B. F. Goodrich Footwear Company, their footwear dealers, advertising agency and the judging organization are not eligible.



B.F. Goodrich

...in pursuit of excellence

MAJOR COOKSEY

(continued from page 73)

Cooksey is somehow able to project the weight of the entire valve train at any specific rpm range, and can therefore set the valve spring pressure accordingly. The only knowledge that Cooksey requires is how hot each driver likes to run his motor. Since each driver prefers a different heat range, Cooksey will set the spring pressures accordingly. Each set of heads that Cooksey builds is different. There is no mass production of pieces; each is a separate and complete project.



The excess-parts bin at Major Cooksey's shows character.

Garlits mentioned in that letter we quoted, the rearend work that Cooksey did for him. Cooksey has gained a wider reputation with the rearend work than he has with the head work so far, mainly because a bunch of Texas racers have been depending on his knowledge for several years.

When Richard Tharp was driving the Carroll Bros.' digger about four years ago, Cooksey built the first rearend for the car, a positraction unit that everyone said would never work. It did, and the car went straight as a string each and every run, proving yet another of Cooksey's theories.

Cooksey re-engineers every rearend that he works on, using precision-measured pieces and extra-careful assembly to assure long life. He considers rearend assembly to be as critical as engine assembly, a point missed by most other car builders.

Like his head work, Cooksey's rearends are built one at a time with carefully machined and measured pieces. Again, there's no mass production.

Cooksey feels that no two gears are cut exactly the same at the place of manufacture, whether it's at the Chrysler factory, or at one of the smaller aftermarket manufacturer's plants. Cooksey carefully matches up each ring gear and pinion shaft. He doesn't care what make of gears you want to use, he'll use almost any type currently in production.

He carefully heat treats all of the parts, but that isn't the entire answer; workmanship is. Cooksey has a thorough knowledge of the stress loads placed on each part of the rearend, and he builds his units to avoid overloading any one part; that's what makes his units so successful.

(continued on page 102)

Shockgun marriage.

Ajustomatics® for the front. Hi Jackers® for the back. From Gabriel.

What goes on in front counts as much as what goes on in back. You need more than just heavy-duty shock absorbers.

You need Gabriel's Performance Team. For extra muscle, extra control at all four wheels.

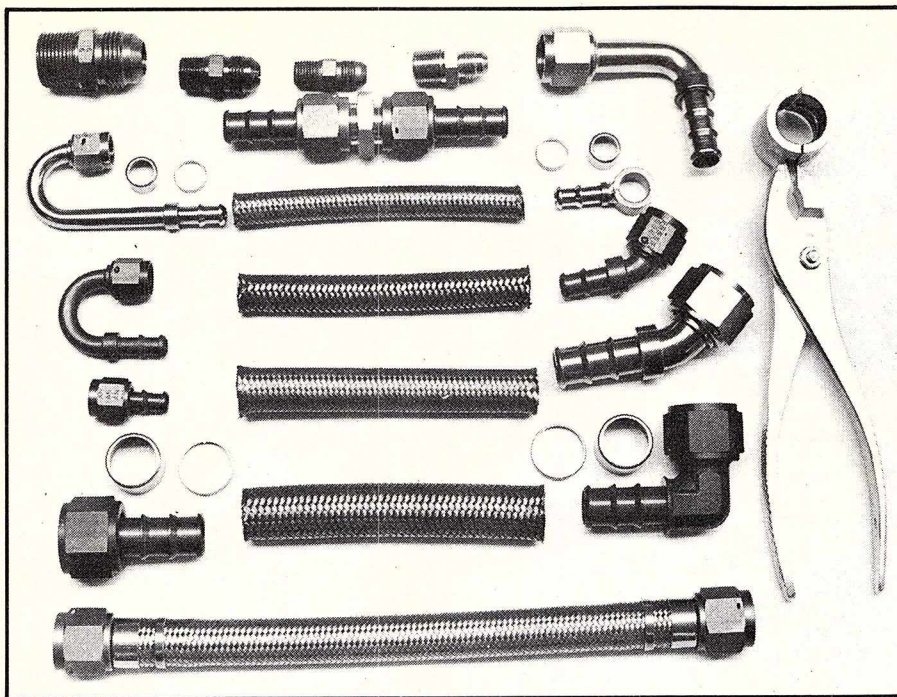
For the front: Heavy-duty Ajustomatics pull through curves flat and level. Front wheels hold firm against pavement to minimize wheel bounce. Adjustable for the way you drive. "Regular," "Firm," or "Extra Firm."

For the rear: Heavy-duty, air-adjustable Hi Jackers lift up to 1,000-pound loads while still maintaining a level ride in station wagons, campers, trailers. And for the performance buff, Hi Jackers give the extra muscle needed for better traction and acceleration. It's as easy as filling a tire with air.

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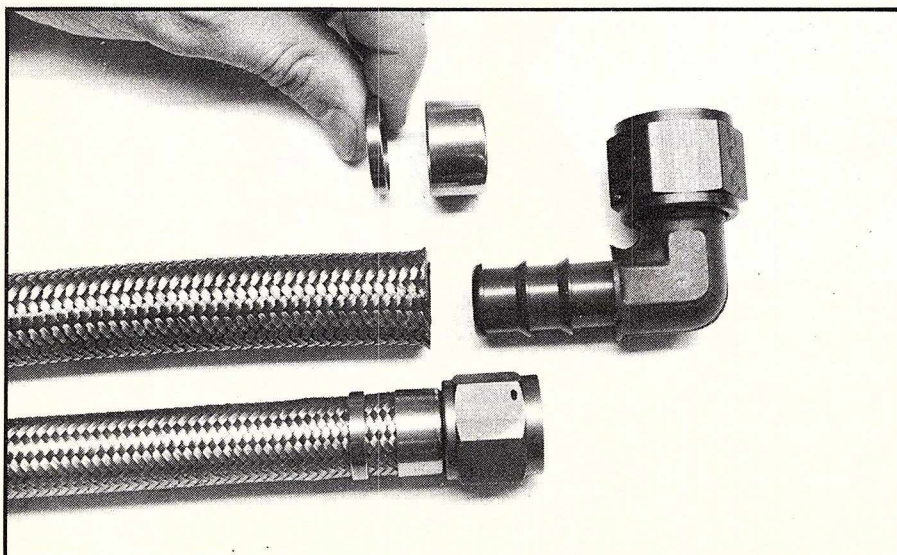
FINE LINES

Western Coupling Company's steel braided fuel lines are professional-looking, easy to install and will make your engine compartment look real spiffy.

TEXT AND PHOTOS BY LARRY SCHREIB ■ Wire braided rubber hose

is widely used by professional racing engine builders to route fuel and oil to their high-strung powerplants. This type of hose answers the requirements for strength and flexibility needed in the competition environment. An inner core of neoprene rubber isolates the fluids from detrimental heat while the external sheath of stainless wire braid protects the hose from deterioration and accidental damage from sharp objects. It has also become a trademark which gives a professional look to the engine compartment.

Up to now, this type hosing has been limited in availability because special



Speed Flex fittings are easily assembled into professional-looking braided steel hoses.

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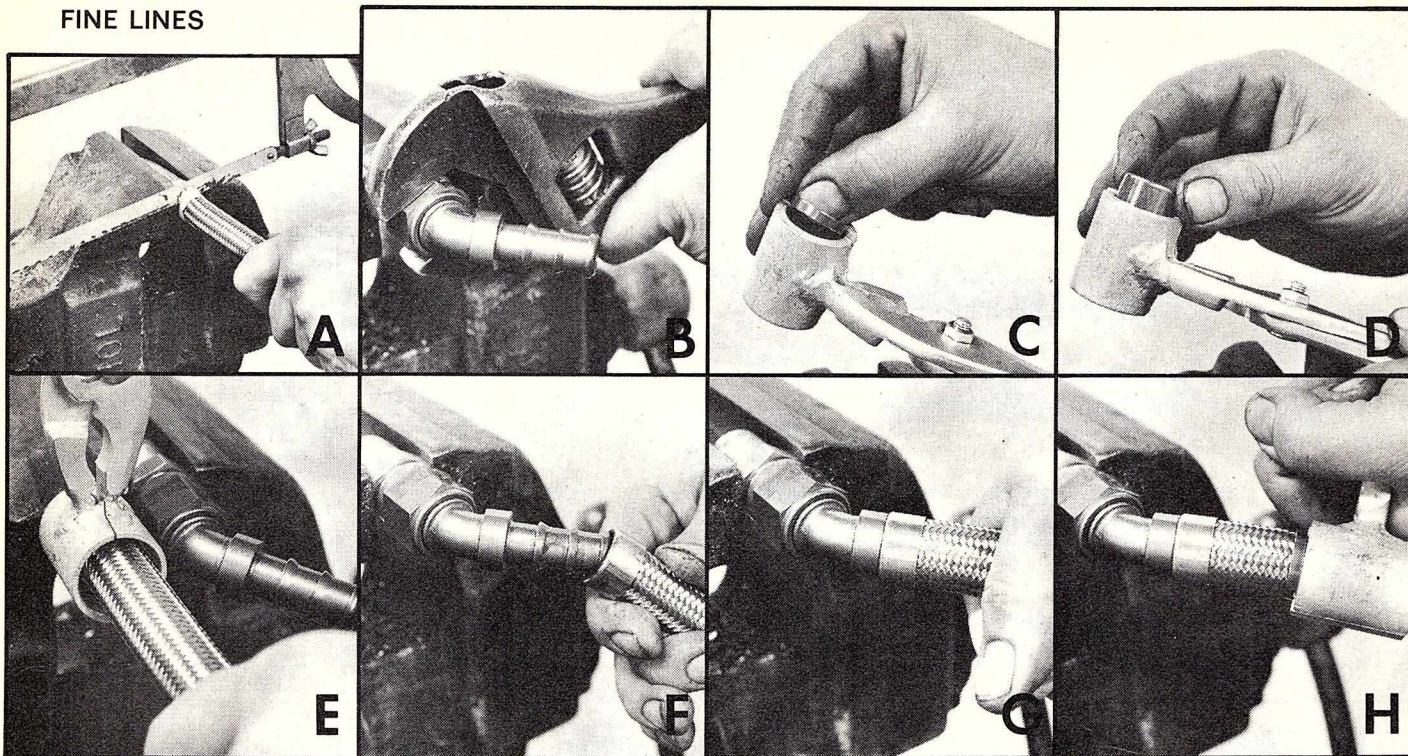
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(A) Tape hose to protect braid and cut to length with hacksaw. (B) Fitting can be assembled in vise or directly on motor. (C) Drop lock-ring into hose pliers. (D) Drop in ferrule. (E) Fit ferrule and lock-ring to hose by pushing in from opposite end while holding against a flat surface. (F) Oil hose slightly and push onto fitting at angle. (G) Push hose tight and, (H) push lock-ring over first barb on fitting.

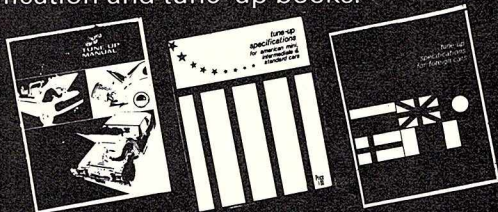
tools are needed to cut the hose and fasten the threaded fittings on the ends. Unless considerable hosing was to be

prepared, the cost was prohibitive to the average guy. Now a new product has changed all this. Manufactured by

the Western Coupling Company of Burbank, California, the hose will be called Speed-Flex and will make it pos-

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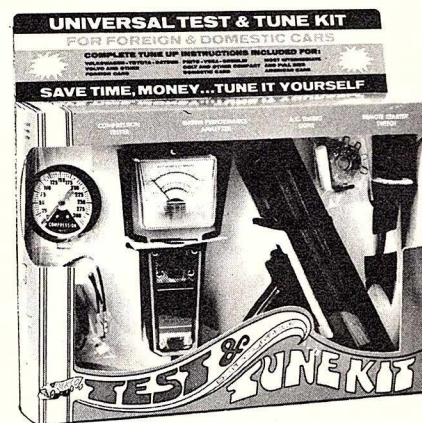
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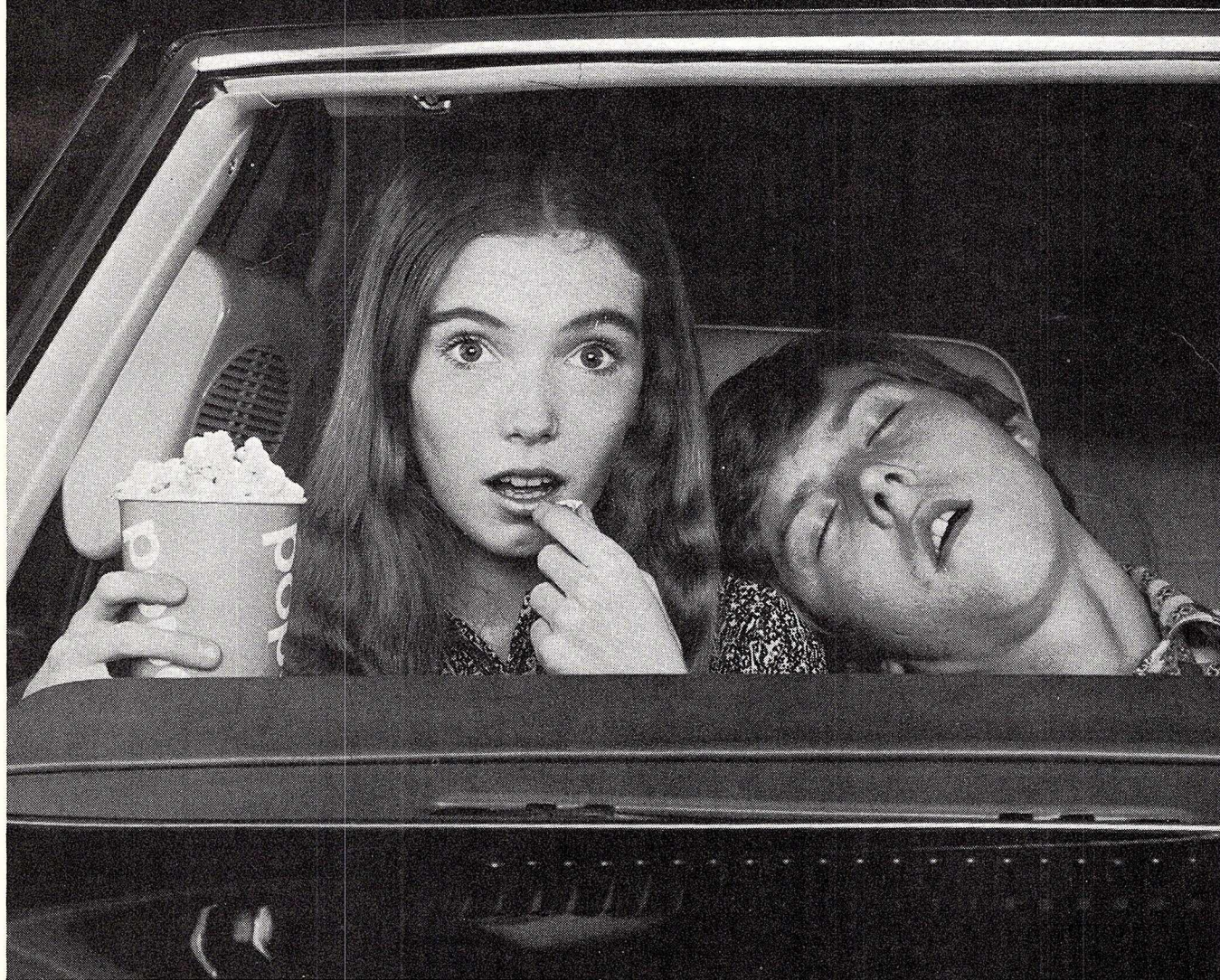
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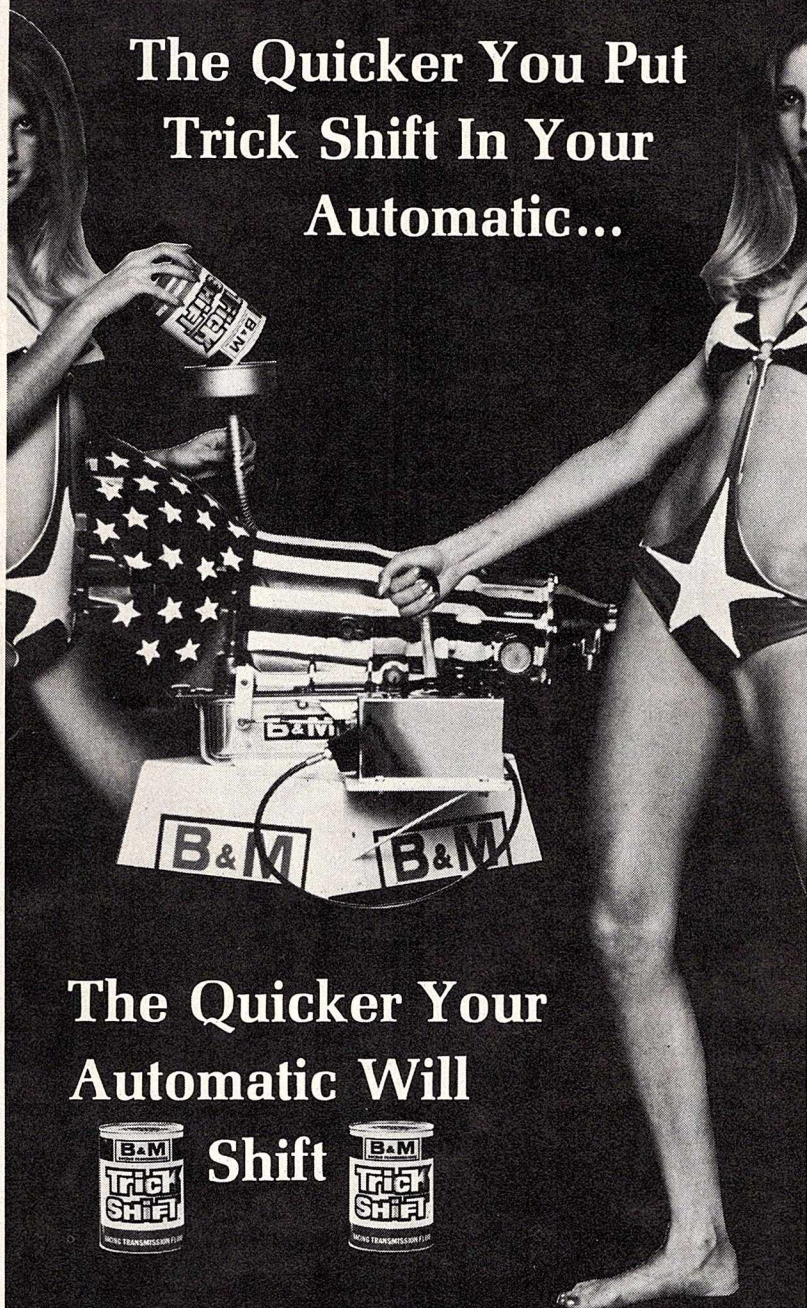
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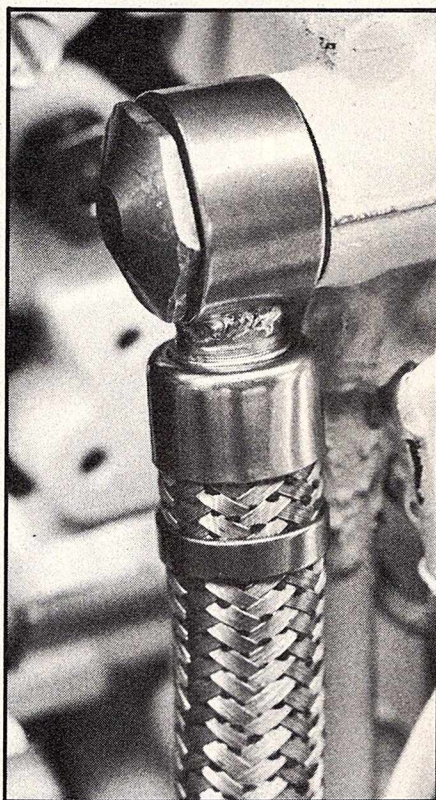
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FINE LINES

sible for anyone to give the professional look to his engine compartment.

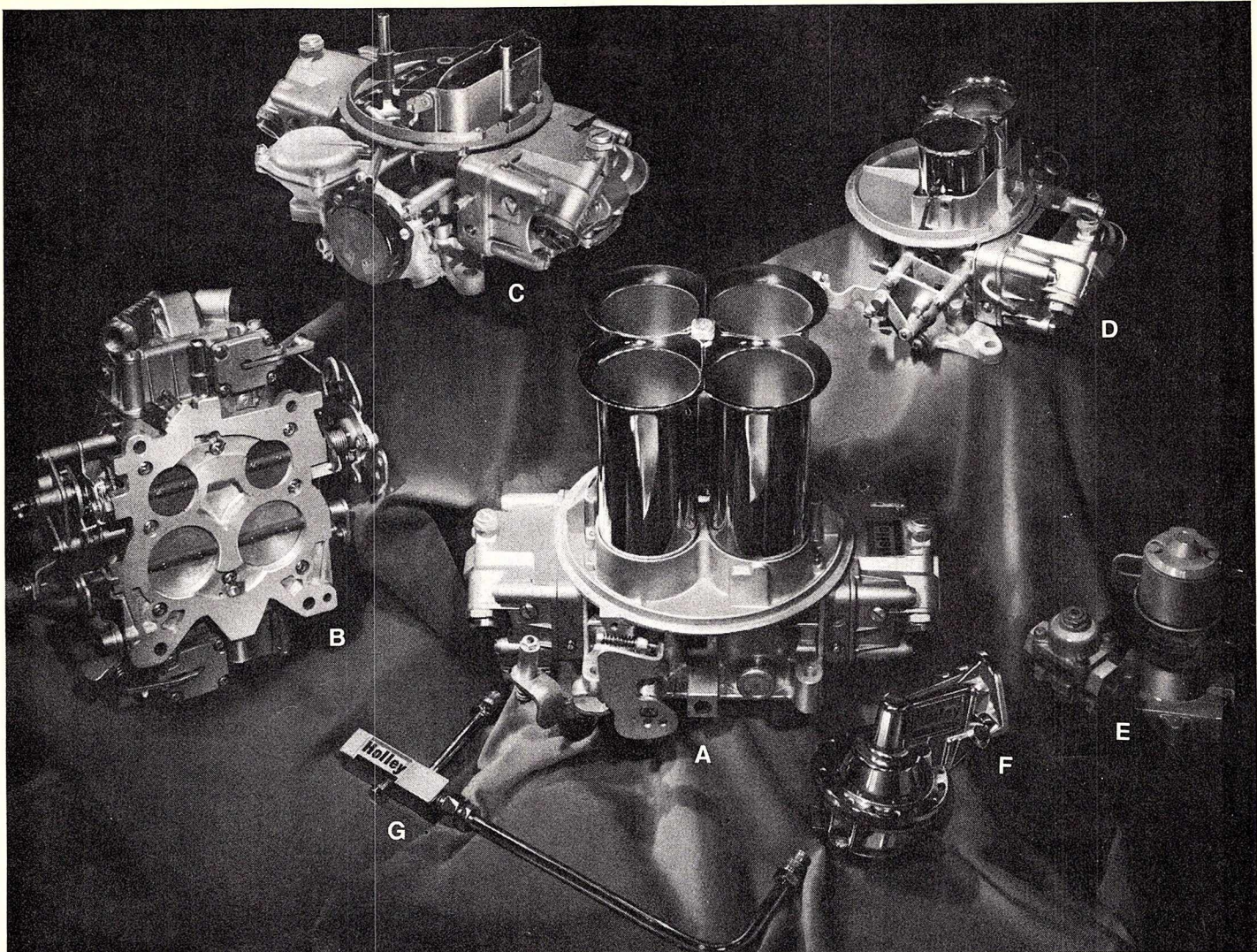
Soon to be available in local speed shops, Speed-Flex can be used to route fuel, oil, water or air at operational pressures up to 500 psi and temperatures ranging from -40 to +375 degrees. The hose comes in 3/8, 1/2, 3/4 and 1-inch tube sizes and can be bought in nearly any length. Stainless steel and forged aluminum fittings are available in straight, 45, 90 and 180-degree swivel nut fittings. There will also be a large variety of special configuration fittings such as carb inlet adapters and pipe thread adapters so the hosing can be used for nearly any requirement.



Special carburetor fittings allow Speed Flex hoses to be used in custom fuel setups on single and multiple carb street motors.

We visited with John Henson at WCC for a few minutes and watched a small section of Speed-Flex being readied for use. Though no special tools are required, WCC does have available special hose braid pliers which will ease the process somewhat. It took about one minute to cut the hose and affix the 45° swivel nut fitting following the steps pictured. The finished hose was neat and professional looking and, in our opinion, would add a real finishing touch to a new fuel system or oil/transmission cooler conversion. Speed-Flex would add both durability and sparkle to an otherwise commonplace installation.





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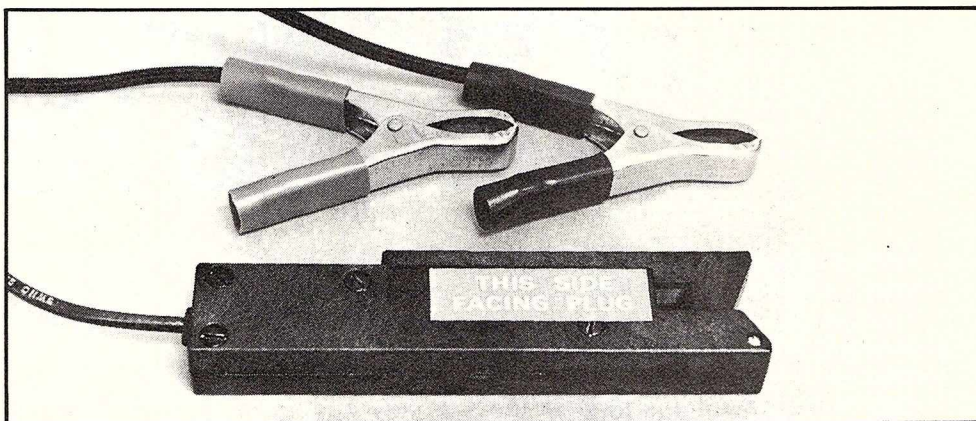
Large doses of ignition advance are easy with the new look in timing equipment

TEXT AND PHOTOS BY DON GREEN

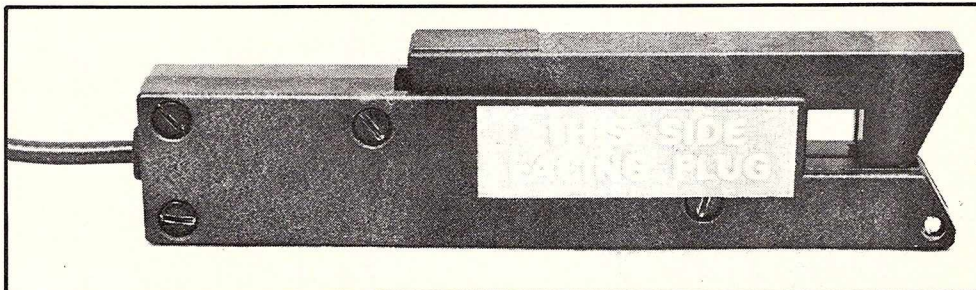
■ Generally speaking, common automotive hand tools aren't the most exciting things. But we've got one here that's far from common and might even excite you. It looks like a timing light (which it is), but it's unlike any other portable timing light you've ever seen.

To distinguish it from more conventional timing lights, its manufacturer, Simpson Electric Company of Chicago, Illinois, has named the unit a Distributor Advance Tester (DAT). It doesn't take a strange name, though, to let you know that something is very different about this particular instrument. Set into the rear of the big blue Buck Rogers-looking pistol is a horizontal meter with two scales, one showing rpm, the other showing degrees of advance. At the trigger location is a rotary switch operated by the index finger. With the switch clicked into the upward position, the DAT operates as a conventional timing light, flashing each time the number-one spark plug fires, but also showing the engine rpm from zero to 3000 on the meter. With the switch in this position, the timing can be set to factory specs in the normal manner using the timing marks on the stock crankshaft damper.

But suppose, for the sake of performance, you want to set your initial timing, at idle, beyond the range of timing marks supplied on most stock engines. These stock timing marks seldom offer more than 6, 8 or 10 degrees of advance, and, more often than not, new engines are being produced with only a single, factory-recommended timing mark. So if you want to accurately advance your timing beyond the range (if any) the factory timing marks allow, you have to go to the trouble of installing a degreed damper on your crankshaft...or, you can guess. The de-



Only three connections are necessary to operate: positive and negative battery and one plug.



Spark plug connection can be made without removing the plug wire or damaging the insulation.

greed dampers are generally expensive and troublesome to install, while guessing can offer more problems than performance. With Simpson's DAT, there's no need for a degreed damper and no guessing involved.

By rolling the trigger switch downward, the meter is switched from the rpm scale to the degree scale. Turning the rotary switch with the index finger causes the meter's needle to move across the degree scale from zero to 60 degrees of advance. The rotary switch can be moved slightly back and forth to make the needle stop at any point on the 0-60 degree scale. But while the switch is being turned to adjust the meter, something else is happening—a variable electronic delay is being introduced into the timing light circuit, causing the light to flash slightly *after* the spark plug fires, rather than at the exact instant of firing. The delay allows you to make use of the 0 degree or Top Dead Center timing mark that is common to almost every engine produced. By adjusting the rotary switch to indicate 12 degrees of advance on the meter, then moving the distributor to line up the Top Dead Center (0 degree) timing mark on the crankshaft damper, the electronic delay in the DAT has automatically seen to it that you have actually set your timing to the 12 degrees advance shown on the meter.

The Simpson unit can also be used to check or set total advance, and it is for this use that drag racers will no doubt appreciate it most. By rolling the switch upward until it clicks to a stop, you switch the meter to the rpm scale. Watching the meter, you increase the

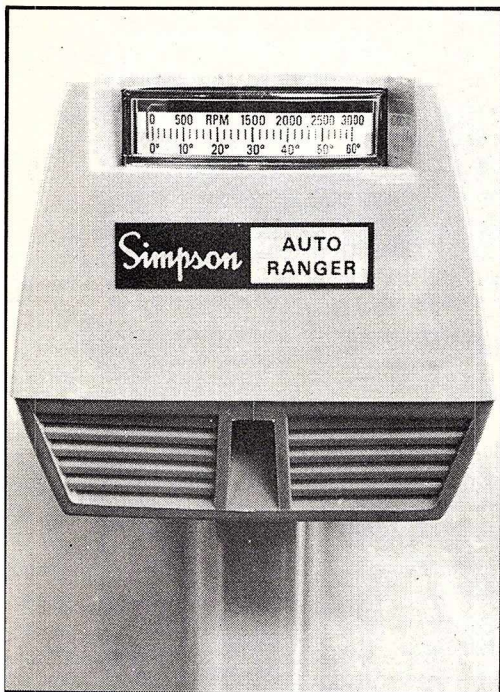
engine speed to 2500-3000 rpm so that the distributor's mechanical advance will be included in the total advance. Then, keeping the engine speed up, you switch to the degree scale of the meter, automatically introducing the electronic delay into the light circuit. Pointing the timing light at the crankshaft damper, you rotate the trigger switch until the timing mark lines up at Top Dead Center. A quick glance at the meter will show you the engine's total advance at the rpm at which you are holding the engine.

Say, for example, that the meter showed the timing set at 32 degrees, but you wanted it set at 38 degrees. You need only to run the engine back up to the 2500-3000 rpm figure and rotate the switch until the meter indicates 38 degrees. Point the light at the crankshaft damper and turn the distributor until the mark on the crankshaft damper is lined up with the Top Dead Center mark. Again, the electronic delay has compensated, and your timing is actually set at whatever figure is shown on the meter—in this case, 38 degrees.

The Simpson Distributor Advance Tester has years of development and use behind it, having been originally developed for the U.S. military. Initially, the DAT was not available to the public. Recently, however, the DAT was slightly redesigned by Simpson's Automotive Division to offer all the desirable features of the military unit at a price that would appeal to the serious automotive enthusiast and professional mechanic. Because there is no formal dealer network for Simpson's automotive products, the DAT's are sold only by mail through the firm's Automotive Division office in Chicago, also helping to keep the price down. At approximately \$70, the unique DAT is priced comparably with the degreed crankshaft dampers available from many speed equipment manufacturers, but the DAT virtually becomes a portable degreed damper for any engine to which it is connected.

The unit is easy to hook up, having only three lead wires: one each to the positive and negative battery terminals, and one to the number-one spark plug wire. Even the connection to the spark plug wire is simplified by using a magnetic impulse pickup that quickly clamps over the plug wire.

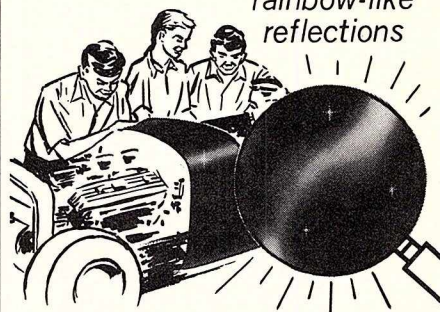
In testing the DAT, we compared its meter readings to the figures on a degreed crankshaft pulley, as well as rechecking the timing with the equipment built into a large, well-known brand, commercial shop console costing several thousand dollars. The DAT was right on. It also overcame a common timing light problem by having more than enough power to make its light seen even when working in direct sunlight. The DAT's time has come. ©



Readable meter has two scales: rpm and degrees of advance; is controlled by finger-operated switch.

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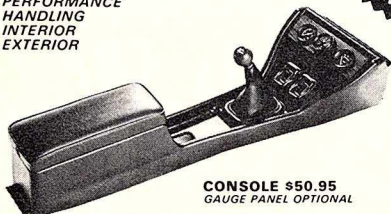
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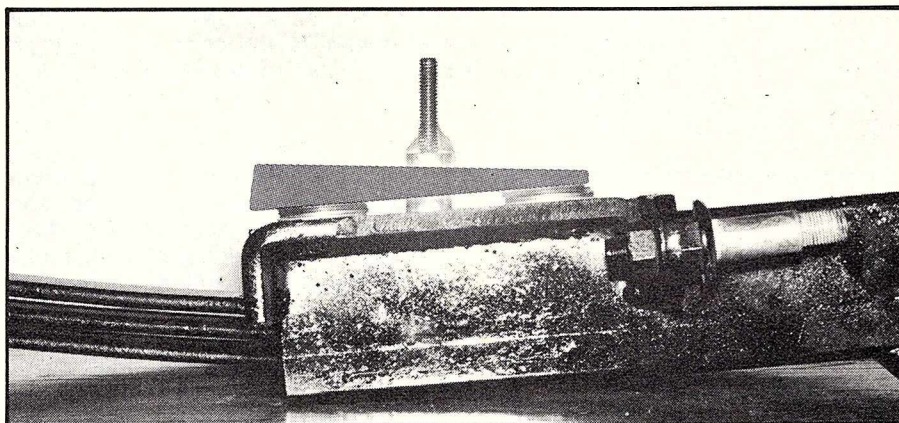
DAN JESEL and his Amazing Axle Housing Locator

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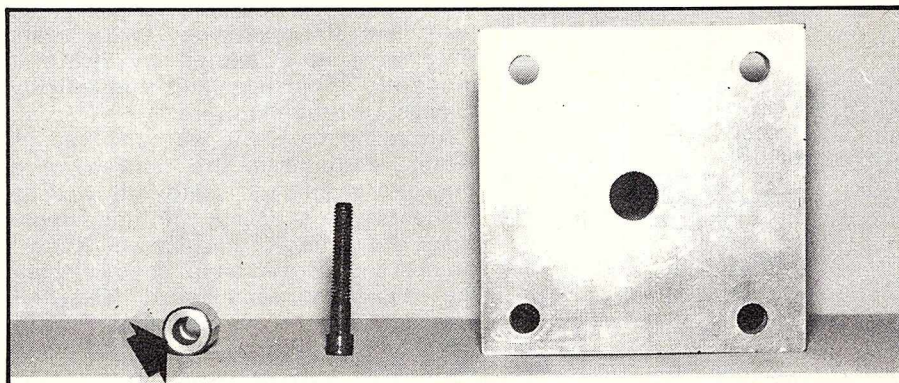
BY RO MCGONEGAL ■ The power of a drag-racing engine is capable of exerting violent shock loadings on a car's driveline components. This phenomenon is apparent in all race cars, but is more vital in the high-horsepower, stock-bodied vehicle. This type of car, typically found in the Pro Stock, Modified Production, Gas Coupe and Stocker classes, usually weighs at least 3000 pounds (except some Gassers) or

more, and it is this weight factor that helps destroy driveline components. To realize optimum traction with the least amount of drivetrain strain, the transmission, driveshaft, and rearend pinion gear must be positioned at the most advantageous angle. Quite simply, this means "aligning" the transmission tailshaft, driveshaft universal joints, and pinion gear so that they are in the straightest possible plane.

The easiest way to accomplish this is to position the entire rearend housing at a forward angle, dropping the front of the pinion gear. To do this, the correct angle shim must be placed between the spring bundle and the spring retaining plate or traction bar. These shims are commonly available at automotive supply houses and from certain aftermarket speed equipment



For illustration purposes, shims between the plate and the traction bar show that the counterbored steel locating pin extends through the plate into centering hole in the bar.



The important steel stock locating pin must first be bored with a 5/16-inch drill and rebored with a 7/16-inch drill to a depth of 1 inch. Step is necessary for screw head.

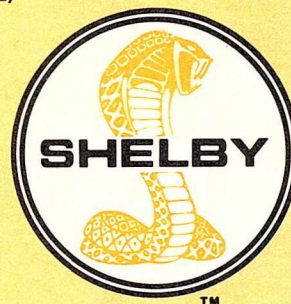
The ultimate tire test . . . wet pavement! (A tire that sticks when it's slick, has got to be great when it's dry). A car mounted with Shelby Sixty tires, moving through the rain at 60 mph displaces about 40 quarts per second. The result . . . perfect rubber-pavement contact, the end of aquaplaning. And there's more. An extremely low profile. Extra-wide, meanest tread pattern around. Race proven four-ply construction. Big footprint for getting off the line. Shape-retaining case for predictable, rail-like cornering. The Shelby Sixty is precision-engineered, and quality control throughout all phases of manufacture assures top performance and safety. The Shelby Sixty tire passes all tests. It has to . . . Carroll builds it.



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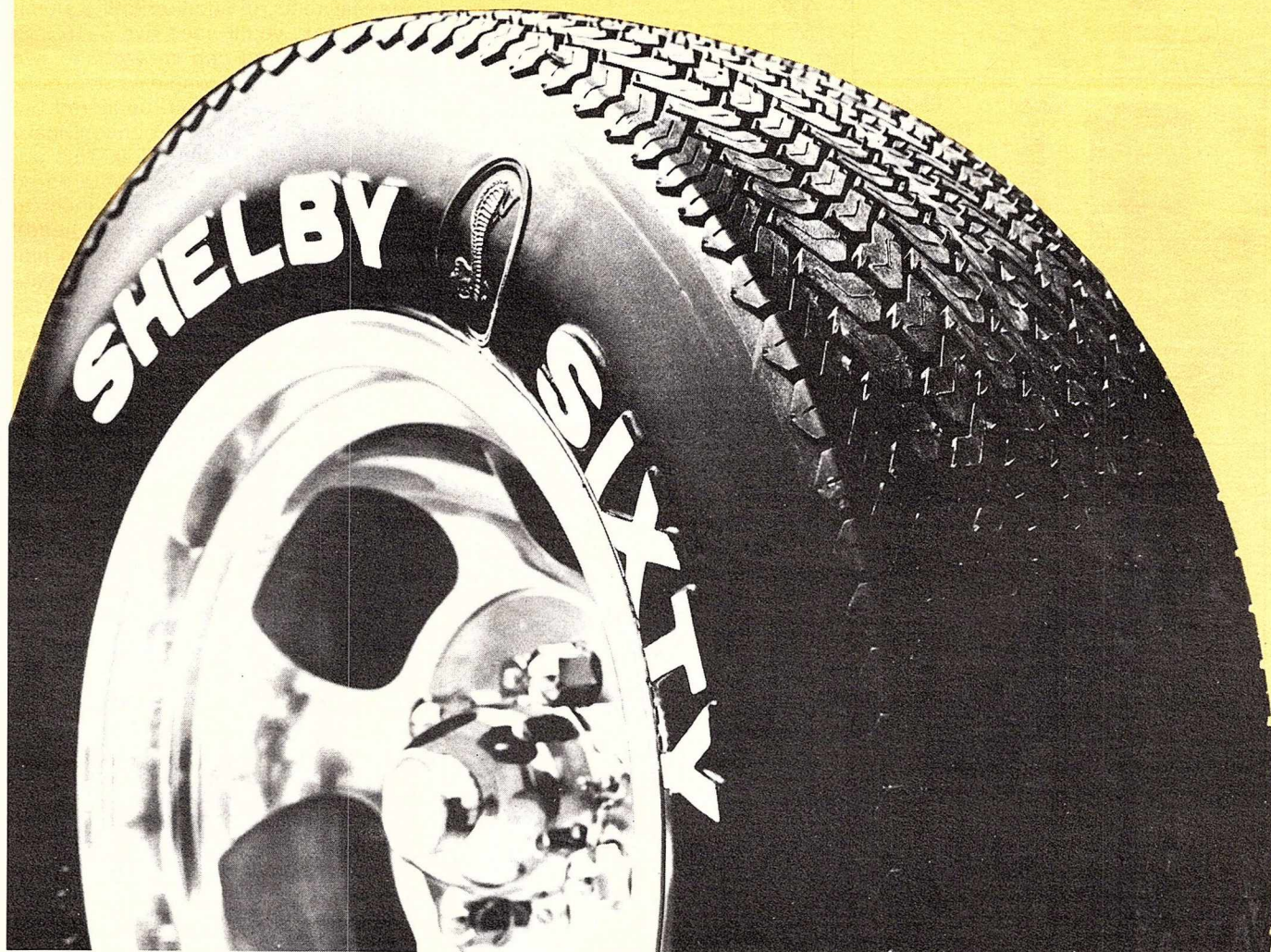
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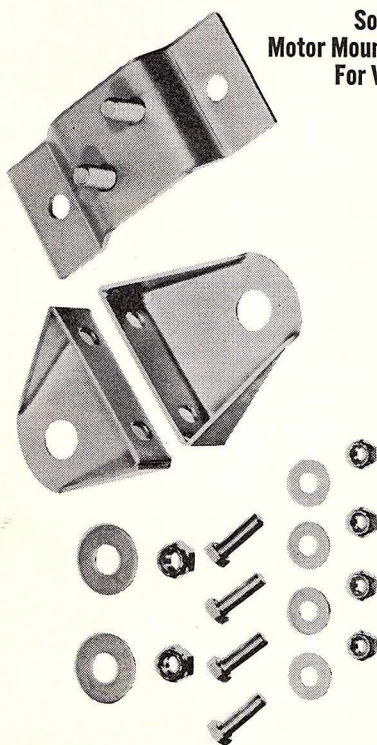


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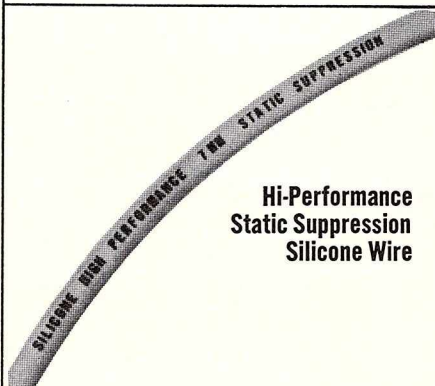
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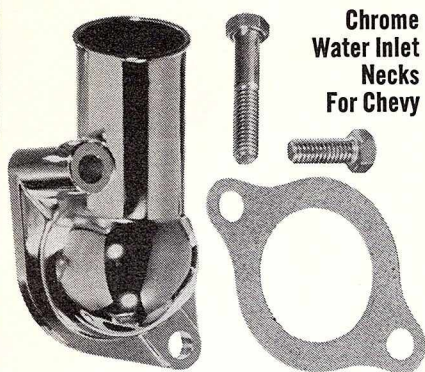
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JESEL'S AXLE LOCATOR

manufacturers. Such springleaf-width shims work satisfactorily on automatic-transmission cars, but on large cubic-inch displacement, 4-speed cars like Dan Jesel's B/MP Camaro, they don't get the job done. Jesel had tried these shims (available in 2, 4, 6 and 8-degree angles), but found that when they were installed, they became "squashed" enough to reduce the actual angle by almost half of the specified amount. To rectify the situation, Dan proceeded to fashion his own axle-mounting shims, which he calls axle housing locators.

Because Jesel has the facilities, he made all the necessary hardware. Since you probably don't, any responsible machine shop can perform the operation for you. First you'll need some aluminum plate stock, preferably at least 1/2-inch thick. This thickness is good for a 2- or 4-degree locator plate; if more of an angle is desired, thicker stock will be needed. Since the locator is more than a shim or wedge (because the axle retaining U-bolts must pass through it to be secured), it must be constructed much stronger than commercial items. In addition to the aluminum stock, you'll need two 5/16 x 2-inch Allen head cap screws and two 3/4 o.d. x 1.5-inch-long mild steel pins. The cap screws remain unaltered but the steel pins must be concentrically bored with a 5/16-inch drill. This primary bore must then be counterbored to 7/16 inch to a depth of 1 inch (to allow for the width of the screw head), leaving a 1/2 inch step inside the pin.

The desired angle of the shim plate is realized by a milling machine operation. When this phase is complete, the plate can be drilled correctly to allow the axle-securing U-bolts to pass through. Diameters for these holes depend on the particular make of axle or traction device you may be using. Since Jesel's car is a Camaro, he used the stock rubber mounting pads (located between the axle and the top leaf spring) but removed the stock dowel pin, which is pressed into the rubber pad, with a 3/4-inch ream. Correspondingly, the shim plate requires a 3/4-inch reamed hole in its middle.

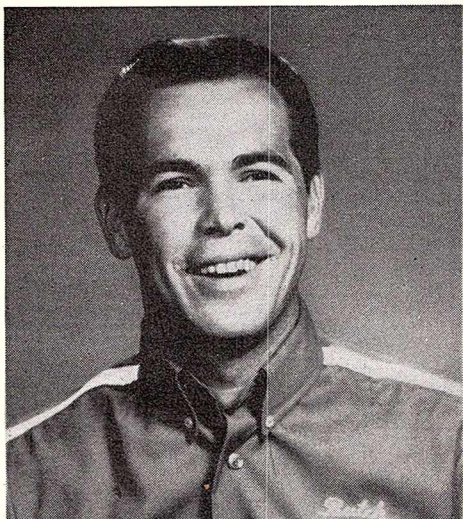
After installing the shim plates in the car, Dan used Lakewood traction bars to take the place of the stock spring retainer plate. The mild steel pin with the cap screw inserted is placed in the 3/4-inch hole in the shim plate and then secured with the bottom leaf spring and corresponding U-bolts. In effect, the dowel pin centers the shim plate, and the cap screw (inside the counterbored dowel pin) centers the leaf spring bundle. See, those Jersey guys aren't so dumb.



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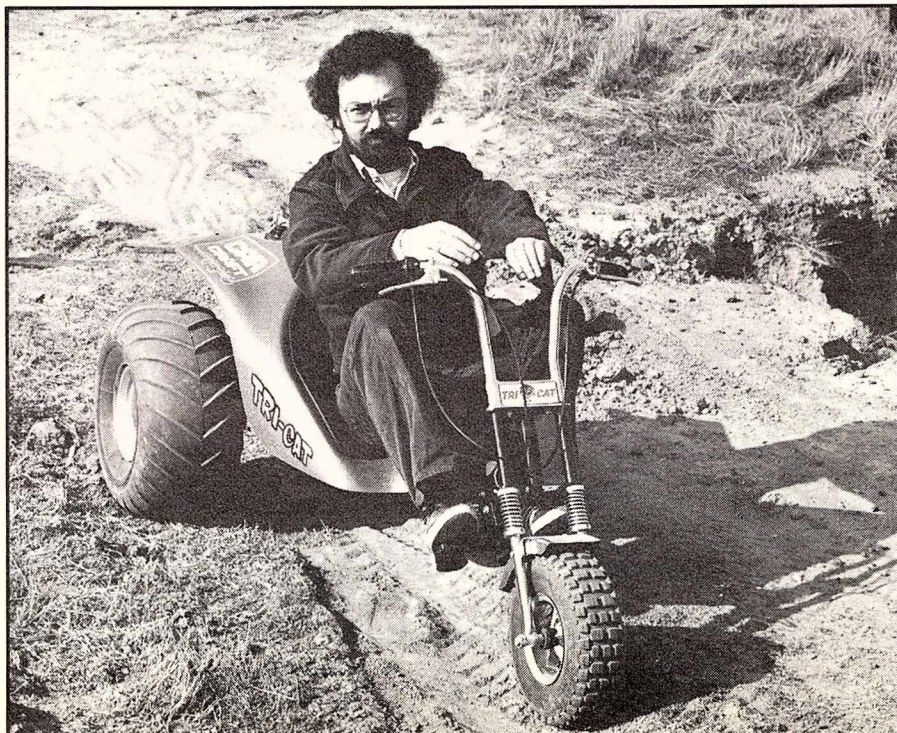
“FREE WHEELIN’ Fred” Tests The TRI CAT

At first glance, the HPE Muskin (Colton, Calif. and Wilkes-Barre, Pa.) Tri Cat looks a bit unwieldy, but once you’ve churned your way through a furrowed field or shot up the nearest 45 degree silt bank your opinion will rapidly change. Though that front 4.10 x 4.00 x 6-inch tire appears to be a bit on the skinny side, it doesn’t dig in; in fact it can be made to clear the surface quite readily if body weight is

shifted to the rear. More body english, combined with the fat 8-inch-wide rear ATV tires (acting as the whole of the rear suspension) enabled us to lift the inside wheel up to eight inches without toppling.

The engine is a Briggs & Stratton 5 horsepower unit that relies on four piston strokes per cycle. The power range and top speed is not attained as fast as with a 2-stroke engine, but then

Fred suavely adjusts the cuff of his Lee brushed-denim outfit just prior to test run.



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When he's not dropping out of the sky, GM Service Engineer Jim Houston's dropping in on customers.

As casually as most people step out of the front door in the morning, weekend skydiver Jim Houston of Denver steps out of an in-flight plane. In the first few seconds of free fall, he spread-eagles his body, arches his back and stabilizes himself for the parachute opening.

Back at work, and on the ground, Jim becomes the "eyes, ears and voice" of Delco-Remy. As a Service Engineer, he's the vital link between Delco-Remy and its customers.

An emergency is an everyday happening with a Service Engineer. That's why Jim's training didn't stop with an engineering degree. After some pretty intensive product training, he served an apprenticeship as a Junior Service Engineer and Training Instructor.

During a normal week, Jim might be found speaking from the podium during an automotive seminar at a university, under a huge truck measuring cranking circuit voltage drop,

sifting through a car dealer's failed parts bin, conducting an electronic ignition repair class or tearing apart batteries to learn why they failed.

Not only does the job keep him on his toes, it keeps him on the move. In a normal year Jim travels nearly 100,000 miles by car and plane. One week may find him in Tucson, Arizona, the next in Kalispell, Montana, and the following

week in Kansas City.

A busy schedule like that would drive anyone else to the nearest easy chair on weekends. But Jim Houston likes to step out for a little relaxation ... about two miles up.

Jim Houston is more than a Service Engineer. He's the kind of interesting person that makes GM an interesting place to work.



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Stopping and turning power is greatly enhanced by dual 5½-inch brakes that are self-centering. Steering is affected by a direct motorcycle-type arrangement suspended by a heavy duty externally-mounted telescopic spring. As might be expected, a great deal of road surface "feeling" is transmitted to the rider's upper body even when the going is smooth. Control is good, though, even when significant humps are approached at a right angle.

The Tri Cat is driven first through a belt-driven torque converter which passes the power to a #420 chain and sprocket. The torque converter effectively provides a two-speed "transmission" with 20:1 low and 5:1 high gear ratios. The traditional "V"

shape of the three-wheeler is 44½ inches at the widest point with an overall length of 69½ inches. Less Free Wheelin' Fred, the Tri Cat weighs a hefty 213 pounds that is obviously unequally distributed on a 51-inch wheel base.

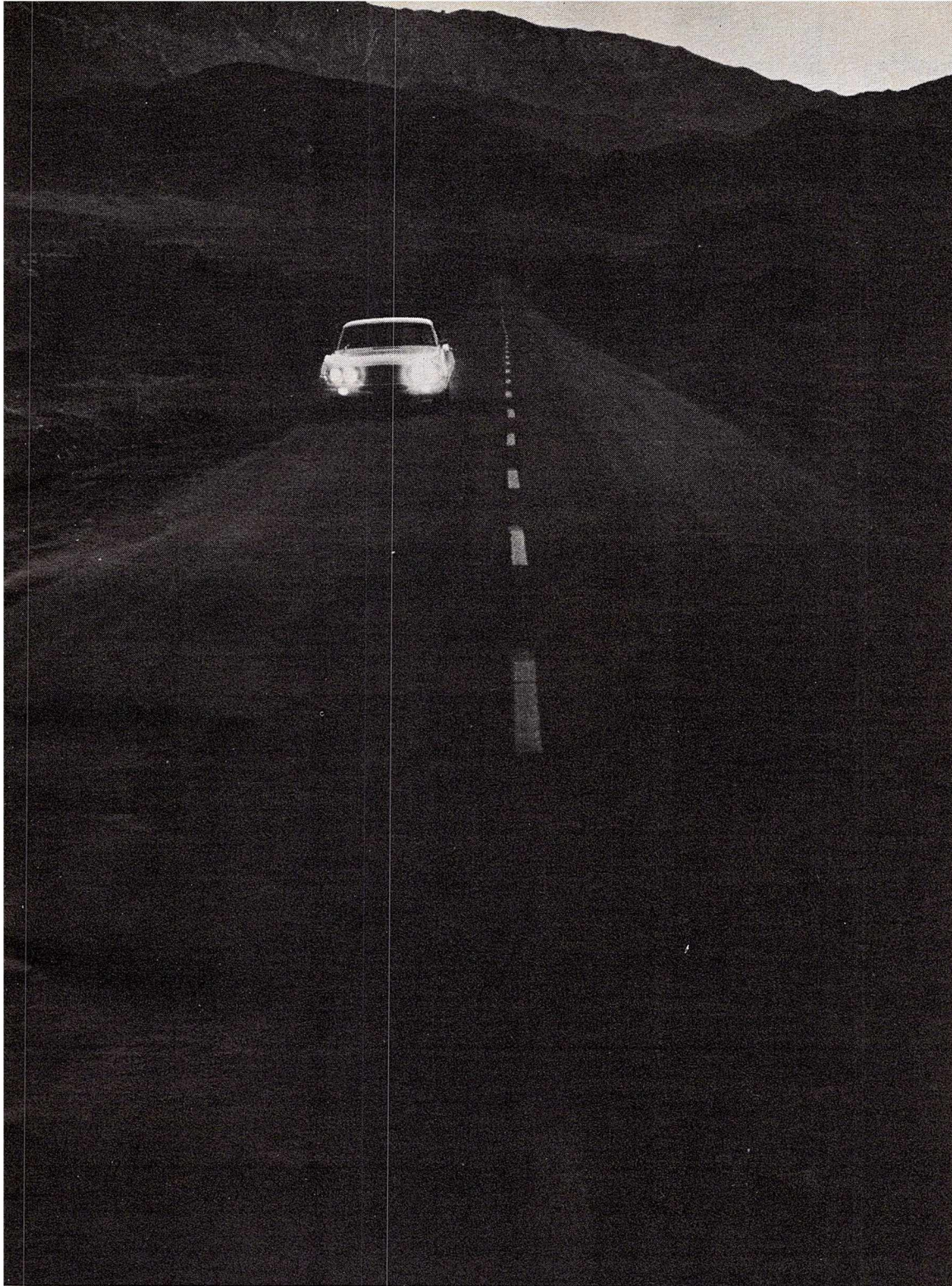
Our typical CC torture test consisted of operation in all types of terrain (except one with large boulders) that lasted almost a full hour without respite. We managed to get the Cat good and dusty, but we didn't go sprawling and we didn't ding the metalflake fiberglass body. The engine and drivetrain are rugged and dependable, operating as if they were human and their lives depended on it. Only the location of the recoil starter was a matter of concern. It is nestled between the fuel tank and a portion of the body and must be pulled *straight* back so your fingers don't scrape. A false move here could leave a nasty gash. With this machine, that's all you'll ever have to worry about.



ABOVE—Fred felt Tri Cat's shell-shaped seat could use a bit more cheek padding.

BELOW—Free-Wheelin' Fred and his immovable hair at their best, trying for 30 mph!





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TEXT AND PHOTOS BY LARRY SCHREIB ■ Nobody really knows where the drive-in phenomenon began. It grew to great proportions in the late Fifties as huge numbers of young people spent hours socializing through car windows at the local hangouts. Today this scene has perhaps declined in some areas, but in our recent visit to the Southeast we found the whole street scene flourishing. Seemingly, Friday night cruising has remained an important



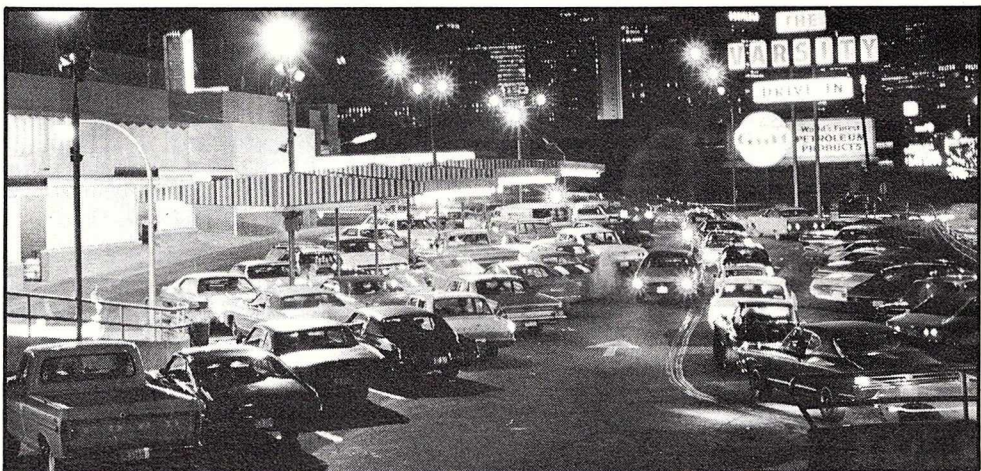
Drive-in U.S.A.

social event to the young people in this area.

Atlanta, Georgia, has a rather unique romance all its own. The very mention of this soft-sounding southern community will fill the average imagination with floating images of plantation backdrops and Clark Gable bending over Vivian Leigh in an impassioned encounter from "Gone with the Wind." The visitor to Atlanta does notice a large number of gathering places, and the young people show a propensity to get together at their favorite spots and, for lack of a better word, socialize.

The street cruisers are present in some numbers every night and the central gathering place is the Varsity Drive-in. Owner Frank Gordy opened this phenomenal establishment in 1928 and it has grown to gigantic proportions. It is located across the street from the Georgia Tech campus in downtown Atlanta, and Frank modestly acclaims it to be the "World's Largest Drive-in." He is probably right. The parking lot covers a full city block and the back half of the lot is two stories high. Long ramps lead up to the second level and a seemingly never-ending stream of cars constantly tour the complex.

If the customer does not care to sit in his car and watch the parade he can venture inside to eat in one of the several functional dining areas. Hamburgers, hot dogs, french fries and soft drinks are served up quickly in huge volumes along a cafeteria-like counter. The customer can then eat at a stand-up bar or go into one of several TV-equipped rooms and sit at a table or in a student-type arm-



"World's Largest Drive-in," the Varsity is Atlanta's biggest meeting spot for cruisers.



Shoney's on Nolensville Pike is the showplace for much of Nashville's street machinery.

chair and eat as quickly or as slowly as he likes. There is even a unique window-lined dining area on a bridge which connects the restaurant with the second-level parking lot. As the cruiser eats here he can watch his

friends slide underneath the bridge as they circulate through the traffic. By 9:30 on Friday and Saturday night the whole scene becomes incredible as literally hundreds of street people flock to this social pivot.

For those who desire less crowded surroundings, the numerous Shoney's Big Boy Drive-ins scattered throughout the city provide alternate meeting places. The Shoney's on Memorial near DeKalk Jr. College and the Shoney's south on Jonesboro Road are always pulsating with street machines and young people.

For those who actually get inside the engines on their cruising machines, Julius Hughes' Honest Charley Speed Shop is a popular rallying point. Even though cruising is a popular pastime, most of the hot cars confine their sport to the local drag-strip, and the rapport between the Atlanta police and the cruisers is very good.

Driving around the city is very easy. An interstate highway, I-285, completely encircles the city while five major freeways join this outer ring to the central area lying below the huge red Coca Cola sign that marks Coke's world headquarters. Except for the short entrance ramps onto the freeways that never allow merging traffic to flow smoothly into passing traffic, the city provides for easy and relaxed cruising.

North and east of Atlanta the little community of Winston-Salem, North Carolina, sprouts forth in the middle of stock car racing country. The famous Petty racing family, Lee, Richard and Maurice, headquarter not far from these twin cities, and their influence is heard and seen everywhere. The countryside around W-S consists of rolling tree-covered hills with narrow winding roads joining the several small communities in the area. The street cars tend to be late-model muscle cars with racing stripes and mag wheels. Some even resemble NASCAR stockers with lowered chassis and wide black-wall tires front and rear.

During our stay, we heard one "news" broadcast which consisted of about 4½ minutes of the latest qualifying results at a stock car race being held in Charlotte, and about 30 seconds of national, international and local news and weather. Obviously a car-oriented community, but characterized as a very "family-like" town by one young man we met there, Winston Salem is not a center for large numbers of cruising young people.

Traffic circulates up and down Fourth and Fifth streets in Winston and often out toward the Four Seasons Drive-in on Peters Creek Parkway. Some traffic heads over toward Old Salem or past the huge central offices for the R.J. Reynolds Tobacco Company. In the summer, a slow drive through the idyllic campus of Wake Forest University provides a cool diversion. It appeared to us that

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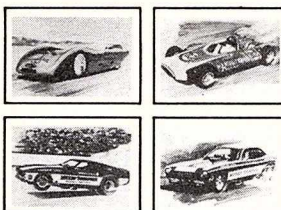
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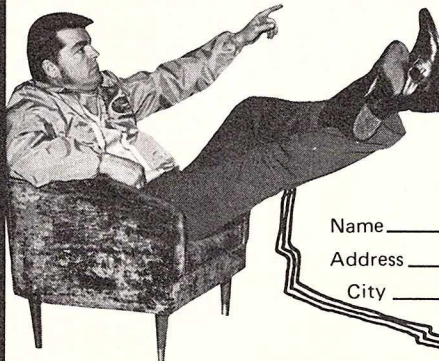
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DRIVE-IN U.S.A.

even on a bustling night in W-S things were quiet and peaceful.

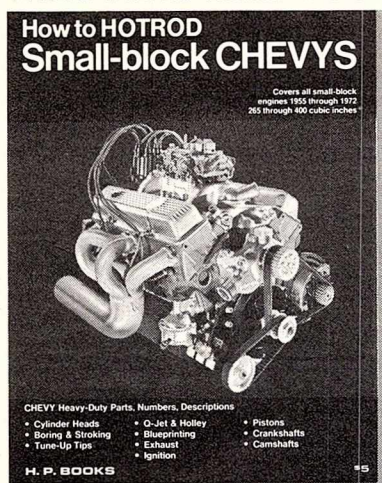
Our last stop in the Southeast was Music City, U.S.A., Nashville, Tennessee. Our first impressions of this town were unusual in that we had a great deal of difficulty just driving around town. As is common in Midwestern and Eastern towns where narrow streets clog up traffic, Nashville has turned to one-way streets in an effort to speed traffic in the downtown area. There is a unique twist to the traffic setup in Nashville, however, as we found to our dismay that often a one-way street going one direction will turn into a one-way street going in the opposite direction as one drives across an intersection. Confusing? Try driving through downtown Nashville on a quiet morning sometime. You need six eyes and a sixth sense to keep from becoming an ugly traffic statistic.

As is true throughout the South, the Shoney's Big Boy Drive-ins are popular wherever they are located. If you spend a few hours sitting in a Shoney's in Nashville, you are bound to see some very wild street machines drive through. Solid front axles, flip front ends, drag slicks and big motors are fairly commonplace. Often the owners call these wild machines "Shoney's cars," indicating they use them only for cruising the drive-ins. The Shoney's on Nolensville Pike at Harding Road is always busy, or the Shoney's in Donelson Plaza usually has a lot of action. The Shoney's at the Madison Square Shopping Center is popular on Sunday afternoons, according to some.

There are three big local dragstrips called Riverside, Union Hills and Big Oak. Action is usually heavy on grudge racing nights and seldom are the streets put to heavy use. The Tennessee Speed Shop or Hunter's Custom Shop are the best places to meet local racers for a quick rap session any afternoon. All in all, the street scene is obviously alive and well in the home of the "Grand Ole Opry."

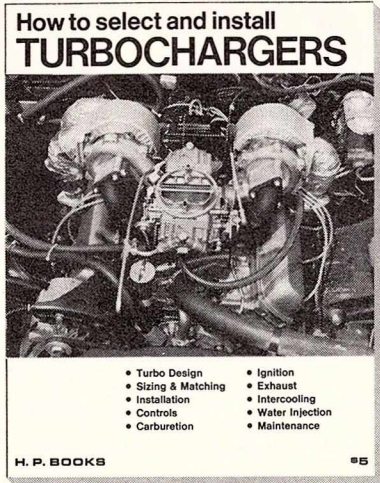
Some would claim that the whole hopped-up street scene car originated in the South with the moonshine runners of the past. Nobody really knows, but the street cars are still strong in this area. We were driving along a country road south of Nashville and we would swear Robert Mitchum flashed past us in a '57 Ford doing about 110 heading down toward Thunder Road. It maybe had some meaning back then, who knows? Perhaps even today there is an answer down there somewhere in Dixie.

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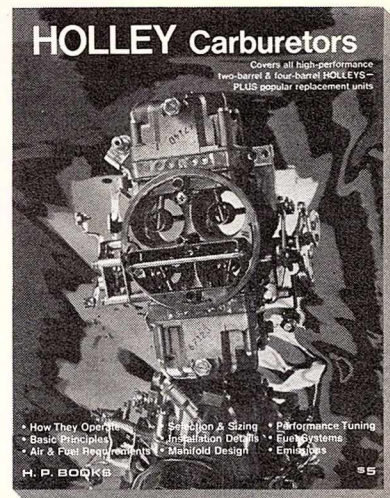
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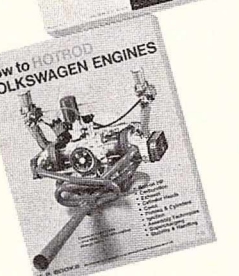
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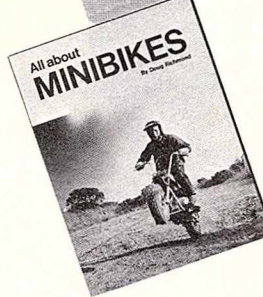
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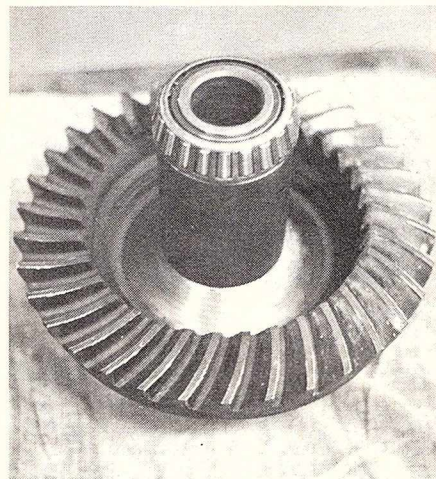
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DIVISION OF ORION INDUSTRIES, INC.

MAJOR COOKSEY

(continued from page 81)

Most rearend failures in today's blown cars are caused by the ring gear "walking away from the pinion shaft." Cooksey's don't, and why they don't is his secret, one he hasn't even told Garlits!



See if you can spot the secret stuff that goes into making this ring gear bulletproof.

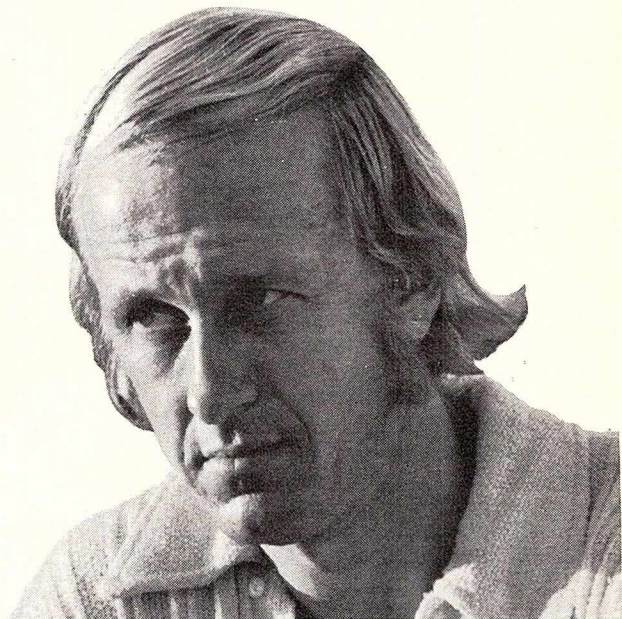
Richard Tharp and Harry Schmidt of the "Blue Max" were among the first to use Major's units, and they swear by them. Formerly getting, at the very most, six runs from each unit, Tharp and Schmidt are now getting upwards of thirty-five. The units are so sensitive, and by that we don't mean weak, Tharp was able to tell that the unit was about to break while racing at the recent IHRA World Finals at Lakeland, Florida. Following qualifying, Tharp insisted that something was wrong. Tharp, totally attuned to Cooksey's work after having run the man's products for four years, got his way; upon tearing the unit apart, he found one tooth slightly cracked in the ring gear. Tharp had heard it while clearing the traps on the previous run.

In case you're at all doubtful as to the legitimacy of Cooksey's head and rearend work, we'll give you a list of the people currently running his products. Gene Snow uses Irving Speed rearends in all three of his cars, and has told Cooksey that he can count on some headwork shortly. Garlits and Tharp use all of Cooksey's products, Tom McEwen uses rearends from Cooksey, Whipple & McCulloch have just ordered three rearends and two sets of heads, Ben Griffin uses the rearends in his Funny Car and in the Yancy-Camp A/FD, the Carroll Bros. use them, the Tarter Bros. & Reed, Stephens & Venables, and the list goes on. Buddy Cortines in the T-Bar & Cortines entry also uses the products, and at the recent Dallas IHRA event they qualified with a 6.54. The car that qualified second was back at 6.78. Does that answer any doubts you might have? ☐

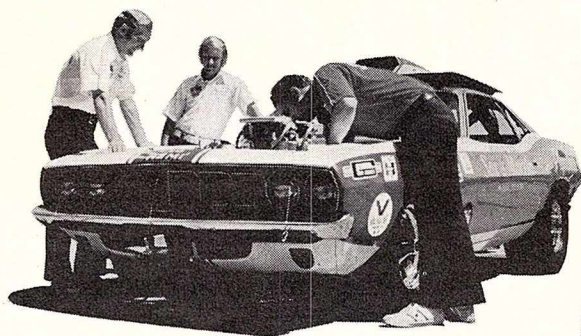
What makes Ronnie run?



His car is fast. His Barracuda, "The Boss," is what's been called "probably the fastest car in Pro Stock."



He concentrates. Before every important run, Ronnie gets off by himself to think through every detail of the race he is about to run.



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His starts are precise. Ronnie rarely red lights. When he drops it in, from a wide open 8,500 rpm's, chances are it's to win. He shifts like lightning. By feel, by engine sound, and by tach.



He knows road surfaces. He has a sixth sense about strip conditions—when to use resin, when not to.



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It tames street or dirt with equal ease.

BY DALE BOLLER ■ Competition among the 250cc dual-purpose class is the toughest in the motorcycle industry. Yamaha popularized the concept in 1967 with their immensely successful DT-1 series, and in 1968 Suzuki jumped aboard with a model that many said surpassed the Yamaha package. Then came Kawasaki with their superb F8 (tested last month), and all the while a trio of Spanish machines offered excellent dirt-oriented performance with street-legal accouterments. A fellow has to choose from these six, and it's a tough decision because all the bikes seemingly have a good formula which really clicks.

Take the 1972 Suzuki TS-250J Savage, for instance. It's a 250cc 2-stroke single laden with every feature desirable on a motorcycle—automatic oiling, tach and speedo, built-in spark arrestor, starting in any gear, bead stoppers, etc. It all adds up to a wispy 275 pounds, compared with 289 for the Yamaha and 307 for the Kawasaki, and that's exact weight to the pound with all fluid levels brimming and ready for a day's ride.

We spent several days with the Savage commuting in town, fun-riding on snaky roads and chasing a big Yankee 500 twin through 60 miles of Jawbone Canyon's roughest off-road terrain. The sky-blue sweetheart took it all in stride, but didn't display the awesome power of last month's Kawasaki. The Savage's 23 ponies at 6500 rpm are normally quite impressive, but our par-

**Bike
Test** By
**motor
CYCLIST**

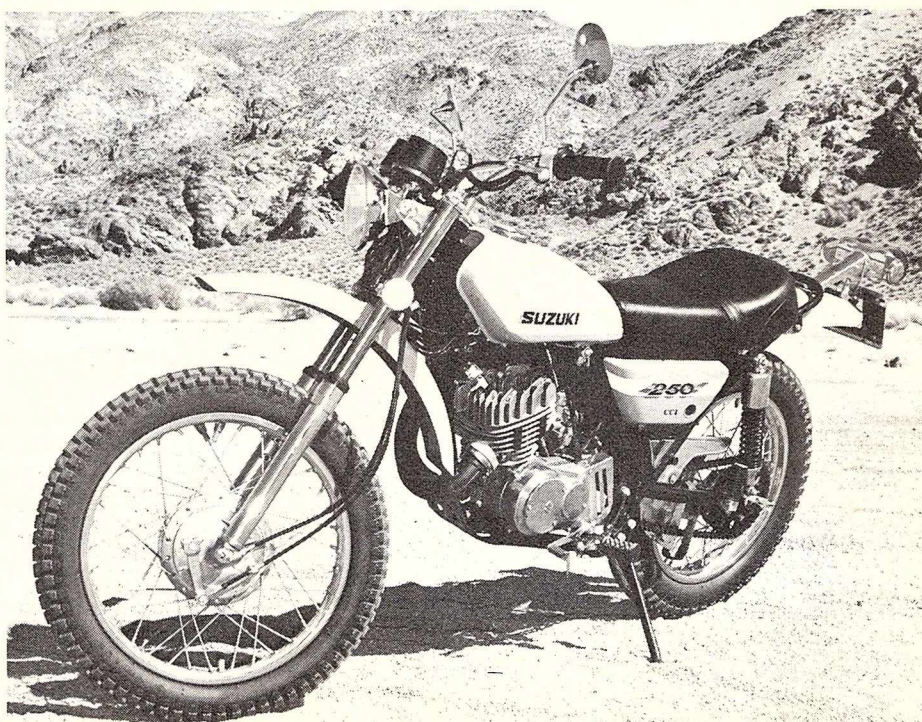


Suzuki 250 SAVAGE



Hydraulic steering damper with internal design like a shock absorber keeps front end from wagging in soft stuff. Tank holds 2.6 gal. of regular.

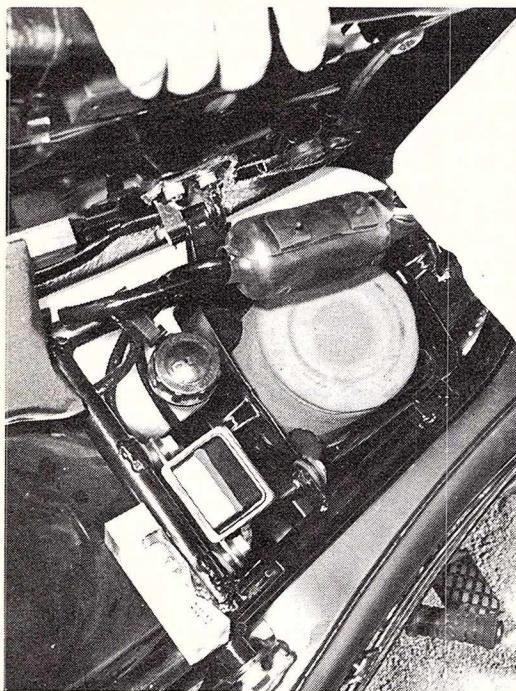
RIGHT—Trim Suzuki sits on 55.8-in. wheelbase and 3.25x19 tire in front and 4.00x18 in rear. Trials Universal tread pattern is an effective street/dirt compromise, works well with bike's great brakes.



ticular test bike only managed a 74-mph top speed and required clutch slipping on certain off-road sections that its little-brother 185 Sierra laughed at. But if the engine wasn't exactly a powerhouse, it certainly was bullet-proof. A fellow tester eager to get home before dark buried the throttle to its stop at the beginning of an endless desert freeway and left it there—for 54 miles! And it didn't even phase the engine. Unbelievable.

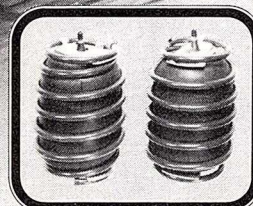
The little mill able to withstand such punishment is a garden-variety piston port single, measuring 70 x 64mm with 6.7:1 compression, electronic ignition and a 28mm Mikuni carburetor. The 5-speed gearbox shifts on the left in a down-for-low pattern, and all ratios are spaced well except for first, which we'd like to see slightly lower so clutching off in loose dirt would be less tricky.

Handling both on and off-road is slow and easy, making inspired riding proportionate to a rider's courage. The Suzuki will hang in there through the deepest pavement leans and the most devastating whoop-de-dos, and you'll find it a difficult bike to outgrow handlingwise. Financially, the Suzuki starts out a bit expensive at \$895, but saves a bundle on gas with a 50.6-mpg average and won't suffer from major maintenance costs because of a strong 12-month/12,000-mile warranty. Overall, Suzuki does a commendable job with its entry in the 250 class—good finish, oil-tight operation, efficient looks—everything adds up to satisfied ownership, especially if your Savage is in crisper tune than ours. In that case, you'll be absolutely dazzled. ©



Filler neck for oil injection tank is located under saddle with sponge-rubber air cleaner element. Unfortunately lid to cleaner box is hard to replace.

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BUSTED FOR 283

(continued from page 37)

employee of CHP who says: "This thing is coming to a head. Maybe these drivers should be concerned with things other than muscle under the hood." He estimates that half the drivers between the ages of 16 and 25 have altered or modified the engines of their cars.

"They have to meet the standards like everybody else. And we intend to begin issuing notices for compliance."

The CHP is terming the analyser tests "a pilot program." But already, funds have been allotted in Sacramento for an additional 20 analysers next year. Soon they hope to have an analyser at each of 73 CHP checkpoints across the state. While the CHP says it wants to be sure the standards are not impractical, it appears the program—or similar inspections—is here to stay.

Loophole One: It is widely believed that the analysers cannot measure the true emission level of a high performance car. Why? Because the probe test is conducted while the engine is idling. Eric Grant, for one, thinks every "high-performance" car will "come out clean," unless, he adds, you've got a "super-hot car." Ditto Edelbrock. Even Hass, of the enforcement agency, agrees. But do not count out the possibility of new tests and more sophisticated equipment in the very near future.

Loophole Two: The section provides for exemptions—equipment that does not impede the performance of the pollution devices. A manufacturer must take a written request for exemption with the Air Resources Board and must prove, by actual test, that the equipment does not cut the effectiveness of the pollution device. A number of exemptions have been granted for "cosmetic" equipment, says Hass, but no manufacturer has sought certification for "the hot stuff."

Paradox One: On what criteria does one exempt a specialty carburetor? It is not the carburetor itself, but the number of carburetors on an engine that might effect the emission levels. Edelbrock, for example, proved to Hass's team of experts that the Tarantula manifold was tested on an otherwise stock engine, with no increase in emissions.

Paradox Two: The responsibility, it would seem, is to fall on the shoulders of the individual car owner.

California is at the threshold. With one hand on the wheel and the other up the crankcase, with a foot on the brake and the other thumping the gas pedal, she sets out to explore the ultimate implications inherent in a

(continued on page 111)

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Customer signature

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Date

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Smog & Safety

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GENERAL MOTORS, FORD AND CHRYSLER REQUIRED OWNER'S EMISSION CONTROL MAINTENANCE SERVICES

Maintenance Service	GM Maintenance Interval	FORD Maintenance Interval	CHRYSLER Maintenance Interval
Air Cleaner Element	Ⓡ each 24/24	Ⓡ each 12/12	Clean at 12 mos. Ⓡ each 24 mos.
Thermo Controlled Air Cleaner	① 4/6 then each 12/12	① each 12/12	Not used
Filter, Fuel Pump	Ⓡ each 12/12	Ⓡ each 12/12	Not listed
Spark Plugs	Ⓡ each 12/12—no lead Ⓡ each 6,000—lead	Ⓡ each 12/12	Ⓡ each 18,000 miles
Filter, ECS Canister	Ⓡ each 24/24	Ⓡ canister each 24/24	Ⓡ each 12/12
PCV Valve & Filter	① 4/6 Ⓡ each 24/24	Ⓡ filter each 6/6, Ⓡ valve 12/12	① 12/12 Ⓡ if plugged or sticking, clean filter 12/12, Ⓡ valve each 24,000 miles
PCV System, Hose & Connections	① 12/12 then each 24/24	Clean each 12/12; Ⓡ as needed	① 12/12 clean as required
Coolant, level & protection	① each 6 months Ⓡ each 24/24	Not Listed	Not Listed
Fuel Cap, tank & lines for leaks	① each 24/24	① each 48,000 mi. or 1 year whichever is first.	Not Listed
Engine Oil Filter	Ⓡ 4/6; then Ⓡ every other oil change. Oil change is 4/6	Ⓡ 6/6	Ⓡ 6/8 which is every other oil change

MAINTENANCE INTERVALS ARE BASED ON TIME OR MILEAGE—WHICHEVER OCCURS FIRST.

Ⓡ Replace

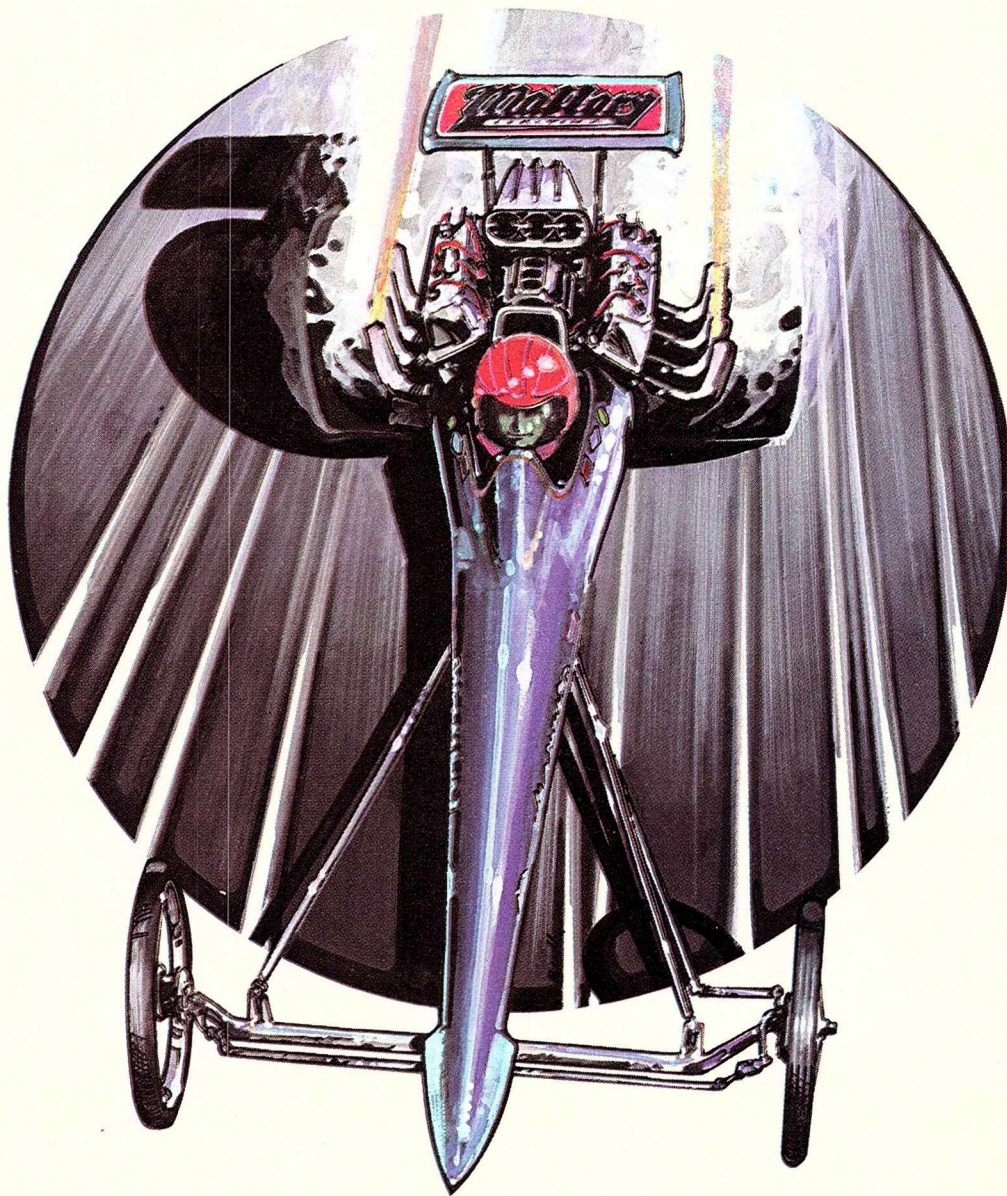
① Adjust

① Inspect, Correct—Replace if Necessary

For example: 4/6 means 4 months or 6,000 miles—whichever occurs first.

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Full-synchro floor-shift. Front sway bar. Special shocks and springs. A sports steering wheel. And 2 contoured bucket seats that won't help you go faster, but will make you more comfortable.

This year, the '72 Gremlin X also comes with something you wouldn't expect on a sporty small car. The American Motors Buyer Protection Plan.

It's a program that takes care of you after you buy the car. And nobody in the business has anything like it. No matter why you buy the Gremlin X, though, your biggest joy in owning it will come on the day you can take it out for a drive and play King of the Road.

¹Optional



decade of writing anti-pollution laws. The acid test is here. There is no going back, eliminating rules, or fudging on The Anti-Pollution Quest. We have arrived, somewhat in the dark, but nevertheless we're here.

The analyzer experiment is a raw beginning. One officer calls it "just another small step." There is talk in the State Capitol of building state-owned emission control centers to check cars with octopus-like probes and plungers; of annual inspections for all cars; dreams of steam and turbine and electric engines; and even that awesome notion of a world without cars.

The importance of the analyzer experiment will not be measured in terms of citations, but in the direction The Quest will continue.

This article took 16 days to research. During that time, some rapid-fire legislation became law. Governor Reagan signed into law a bill providing for emission standards on cars dating back to 1955. Another bill became law seeking standards for the emissions of oxides of nitrogen, that nasty compound which materializes into the visible smog we see in the

atmosphere. The legislature okayed a law to license auto repair shops and set up complaint bureaus to monitor them. A bill proposing mandatory annual inspection of cars was "shelved" for what is known as "interim study." It will be back in early 1972 for a vote. And you can also expect Sen. Nick Petris of Oakland to re-introduce his favorite proposal: a total ban on the internal combustion engine in California. If you're laughing, remember that Petris' funny proposal was approved by the state Senate for three consecutive years, only to be defeated by the Assembly.

Reams of legislative proposals involving the car and its infamous contribution to smog is introduced during every session. Some pass, some don't. But the trend here is for more legislation, not less.

If Hass thinks the confrontation with the speed equipment boys is imminent, it is "because the law is foggy. . . with no clear definition of just what exactly constitutes an illegal modification." Once inside the threshold, the law may be made clearer.

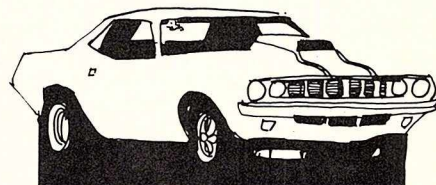
Grant, who favors mandatory annual inspection of all cars, views many legislative proposals as "a constant threat" to the high-performance industry. He is probably correct.

Capt. Fradenburg is reflective: "We don't want to run anybody out of business. But we've got an awful lot of pressure on us—the public says smog is killing us and businessmen say we're running them out of business. And they (businessmen) are faced with a threat."

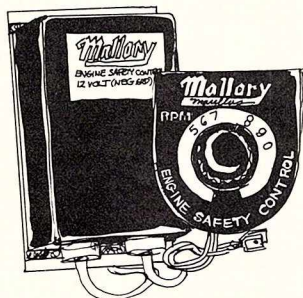
Vic Edelbrock may have created a slogan: "It's not what's under the hood—it's what's coming out of the tailpipe." At testing time on the CHP line, he's confident the high-performance car is going to score "in the same ballpark" as the stock car.

Others disagree, and none more eloquently than an anonymous air resources official who said: "Anyone who suggests that high performance equipment can be installed on a stock engine without altering that engine's pollution system is suggesting you can make soup of a chicken without cooking the bird!"

The months ahead in California should determine whose bird is going to get cooked.



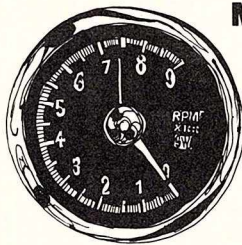
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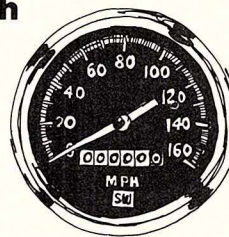
This is an electronic pulse measuring device. It grounds out the ignition system at a predetermined RPM. After turning off the engine, the Control turns the engine back on in a few milliseconds, and if the engine again reaches the Control's predetermined RPM setting, it will again ground out the ignition. Missing a shift at high RPM usually results in engine damage because of over-revving the engine. The Engine Safety Control limits the RPM the engine can turn, saving the engine. (For 12V Negative Ground Electrical Systems)
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Buggin' Out

Control VW wheelhop with one of these three traction aids

TEXT AND PHOTOS BY DON GREEN ■

If you're a VW owner, you'll probably be able to relate to this: You're about to do a little burn-out with your Bug. You bring up the rpm and dump the clutch. The tires begin to spin, then they start to hop, and the whole car shudders like it's being driven up a set of stairs.

You've just experienced "wheelhop," the inability of the rear suspension to keep the rear tires firmly on the ground during hard acceleration. It happens in all cars at one time or another, but it happens in certain cars much more regularly. The VW is a regular customer.

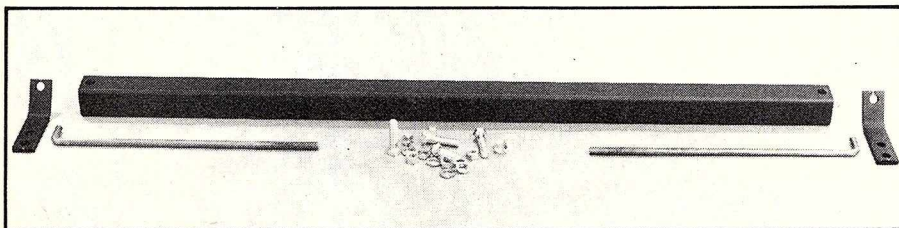
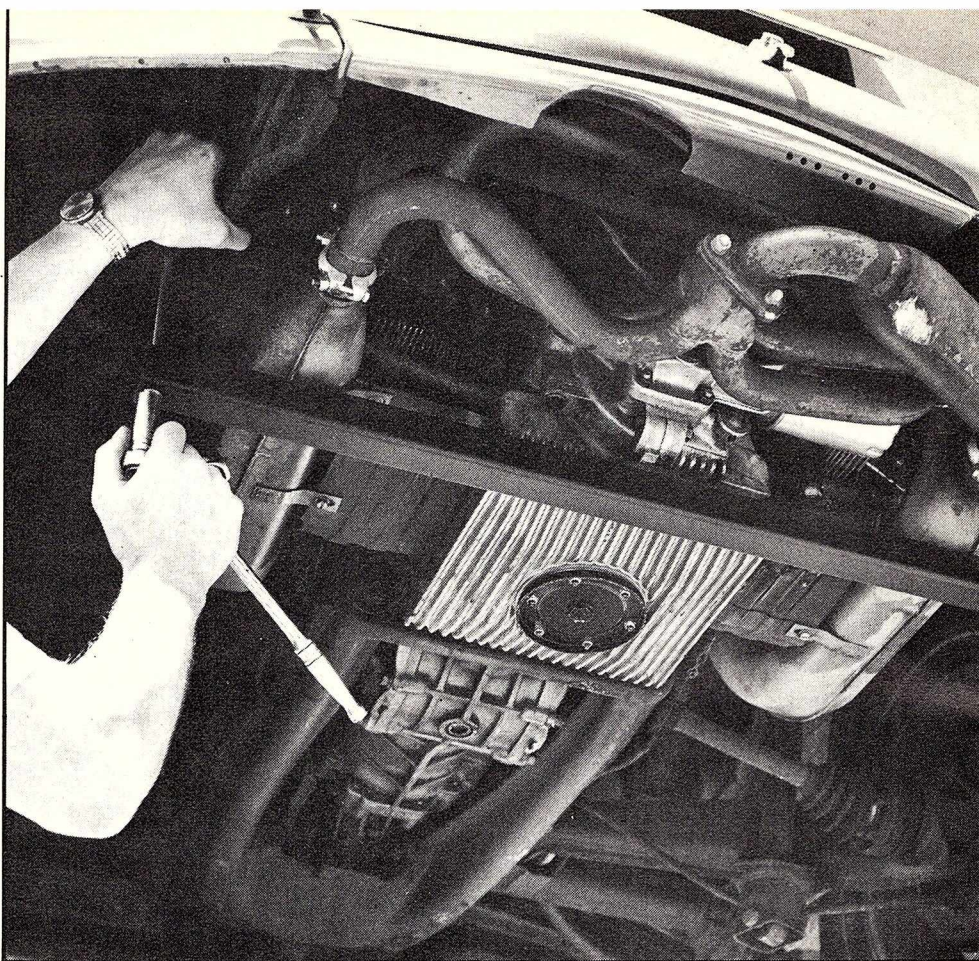
The effect of wheelhop in a VW is the same as in any other car—loss of traction—but the reason for the wheelhop is somewhat different than for more conventional front-engined cars. In most cars, the torque applied to the rear tires is transferred to the rear suspension through the differential housing. Wheelhop is then the result of the rear suspension "wrapping up" and momentarily allowing one or both of the rear tires to leave the ground. In a VW, all the torque is absorbed by the transaxle unit rather than the suspension. When the clutch is let out and the tires start to bite, the transaxle attempts to rotate in the opposite direction. (This rotation includes the engine, since it is hung on the transaxle housing like a large counterweight—the engine has

no mounts or supports other than the transaxle housing itself.) The engine moves downward slightly, compressing the transaxle's rubber mounts until they will no longer compress. At that point, the transaxle and its mounts cannot absorb any more torque, so the tires begin to spin. Immediately, the spinning tires relieve the transaxle of its torque load and the rubber mounts spring back to their normal position. This causes the tires to again gain traction and start loading torque on the transaxle. The whole cycle takes only fractions of a second as the tires bite, spin, bite and spin. The result is wheelhop. The whole process is aggravated somewhat by the VW's cable-operated throttle. As the engine moves up and down during the torque loading and unloading, the throttle cable opens and closes the carburetor slightly. The problem is to control the movement of the engine/transaxle assembly, and there are several ways this can be done.

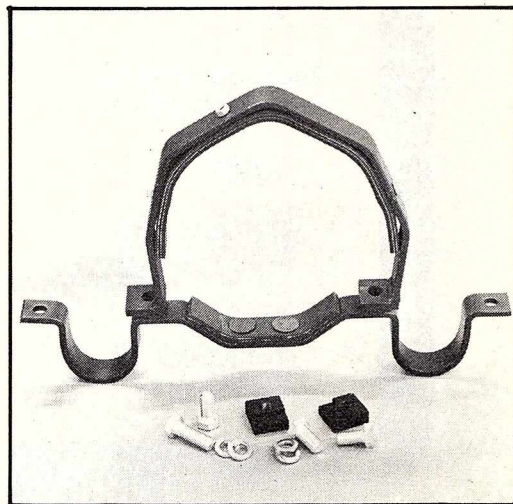
All the methods are efficient, but some of the mechanics are easier than others to install. Each has a particular value to a particular type of vehicle.

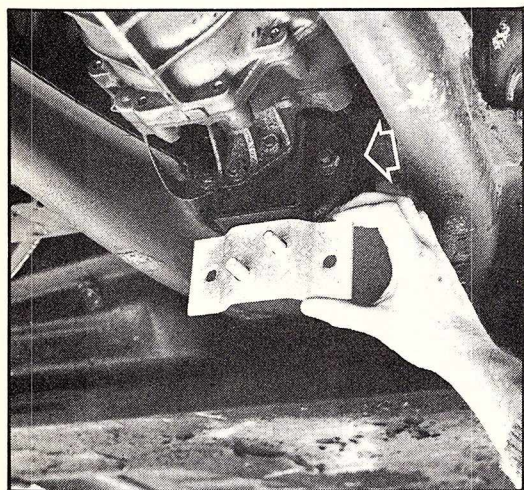
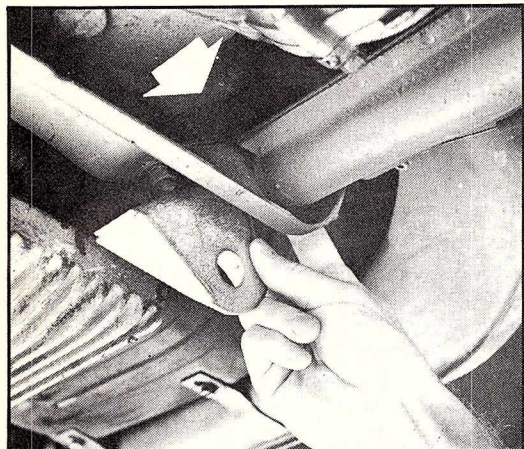
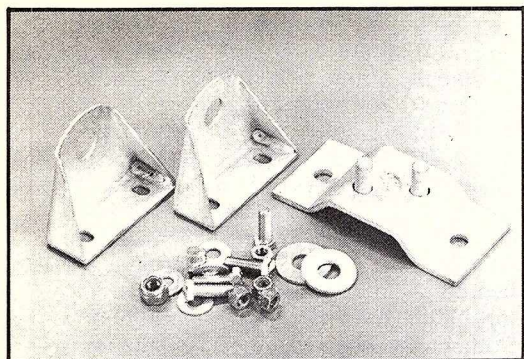
To see the different types of equipment available, we went to Scat Enterprises, a major speed-equipment manufacturer in Inglewood, California, which has its roots in the design and manufacture of VW equipment.

Basically, there are three types of equipment to control VW wheelhop. The simplest to install is Scat's heavy-duty rear engine mount. Strictly a bolt-on operation requiring a minimum of basic hand tools and a few minutes labor, the rear engine mount

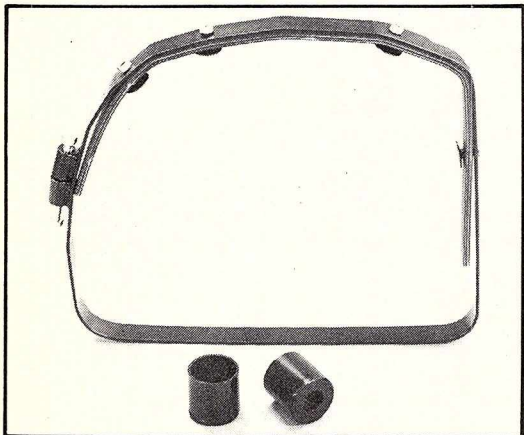


Scat's heavy-duty rear engine mount for Volkswagen is easiest traction aid to install.





Solid trans mounts are made of heavy steel plate replacing stock, flexible rubber mounts (arrows).



Insulated steel straps fasten the transaxle and the stock VW frame horns into a single, rigid unit.

preloads the cantilevered VW engine to keep it from moving downward in the chassis during hard acceleration. The mount consists of a length of heavy-walled steel tubing that bolts to the chassis and supports the engine at the rear near the crank pulley. This keeps the engine from moving and flexing the rubber transaxle mount much in the same way a pinion snubber controls rearend movement and spring wrap-up in most American cars.

A second method for controlling wheelhop is through the use of heavy-duty transaxle supports and straps that actually wrap around the transaxle housing and rear frame horns to limit the movement of the housing in the chassis. The straps are also simple to install and do not require the removal of the engine or transaxle assembly from the chassis. For the most effective control, two types of support straps are recommended—one at the front of the transaxle to prevent possible damage to the stock transaxle nose mount, the other around the rear bellhousing section to support the rear mount. This particular type of mount, though usable on virtually any VW, is most often seen on dune buggies and off-road vehicles where there is not adequate support for the heavy-duty rear engine mount mentioned above.

Since the whole idea of the mounts and straps is to reduce the amount of flex possible in the stock VW rubber engine mounts, it is logical to go right to the mounts and solve the problem by redesigning the mounts themselves. This is what has been done with Scat's solid transmission mounts, probably the most effective cure for VW wheelhop. Formed from heavy-duty steel plate, the solid mounts completely replace the stock rubber and steel mounts at all three locations, tying the transaxle and chassis into a single, rigid unit to offer the maximum in traction. The rigid mounts, however, require the removal of the engine/transaxle assembly from the chassis while the mounts are replaced, and also offer the possibility of slightly increased engine noise inside the car through the elimination of the insulating rubber in the stock mounts. But the result is worth it if wheelhop is a serious problem to the performance of your VW. Remember that solid engine mounts are standard equipment on every serious drag racing vehicle in the country, from Pro Stockers and Super Stockers to Gassers and Fuel Dragsters.

Whatever the design of your particular VW-powered vehicle, if wheelhop is a problem, one of these three items can offer you the cure. (C)

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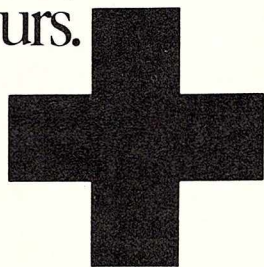


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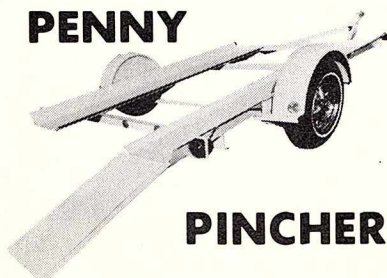
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INSIDE GRUMPY'S TOY

(continued from page 46)

a dual-pattern, flat-tappet grind. The 320-F has an intake duration of 320 degrees and an exhaust duration of 332 degrees. The intake and exhaust lifts are .558 and .557-inch, respectively. The major change Jenkins made was to run 1.65:1 ratio rocker arm on the intake valves, and a stock 1.5:1 ratio rocker on the exhausts. The higher ratio intake rocker effectively shortens the cam's duration and increases the lift, an effect the engine "seems to like," according to Jenkins. General Kinetics lifters and number 2010 three-piece springs were used in the 327 with a combination of Manley and G-K aluminum retainers and 5/16-inch Manley pushrods. The pushrod guide plates were stock. Bill installed the valve springs to give a pressure of 430 pounds at a .600-inch valve lift. The cam was driven by a Morse chain and a stock Chevy aluminum cam gear.

All the porting work on Grump's cylinder heads was done by Air Flow Research in Van Nuys, California. At Jenkins' request, the intake ports were opened somewhat larger than on the standard Air Flow Gasser or Modified Production heads, while the exhausts were ground to the standard patterns. No doubt because of Jenkins' success with the small-block, Air Flow now offers a Pro Stock series of small-block heads ground to the same specs as those produced for him. The original castings are the late model, canted plug variety.

The valves were 5/16-inch, solid-stem Manleys: 2.06-inch diameter intakes and 1.600-inch exhausts. The intake valves were specially made for Jenkins by cutting down the heads and regrooving the stems of 427 Chevy valves, but the 2.06-inch valves have now become standard small-block items for Manley.

Both the intake and exhaust valve seats were prepared with 45-degree cuts, then narrowed to .080-inch by taking a 60-degree cut into the valve pocket and a 10-15-degree cut into the combustion chamber. A slight interference angle was cut into the seat on the valve: Bill uses a 44-degree angle on new valves and a 44½-degree angle on used valves. The intakes were undercut at a 30-degree angle to improve flow. Jenkins also pointed out that it is critical to the gas flow to leave an .080-inch-thick edge on the exhaust valve; the edge should be radiused slightly to keep the valve from burning.

Grumpy is always working with a wide variety of intake systems. At Pomona he ran an Edelbrock TR1X ram manifold base with a custom ple-

num chamber. The plenum started life as an Edelbrock item, but Jenkins cut off much of the top portion of the chamber. He estimates he reduced the interior volume of the plenum by about 50%. An aluminum plate was heliarced to the top of the reworked plenum to provide a sideways mounting position for a pair of 660cfm center-squirt Holleys. The carbs are mounted on 5-degree wedge plates for better metering and distribution. Both carbs used number 72 jets for all four barrels. Jenkins had planned to experiment with the giant 4500 Holleys on the engine before Pomona, but he "knew he had enough horsepower and there was no sense in screwing with them." The fuel is supplied by a Holley pump mounted inside the Vega fuel tank, and regulated by a Holley regulator.

The ignition system consisted of a standard dual-point Chevy (Delco) distributor and a Prestolite transistor system. The distributor was wired to change from one set of points to the other as the car was shifted into third gear, automatically retarding the timing 3 degrees (see "Two-Timer," *Car Craft*, November, 1971). The plugs were some soon-to-be-released BL-60Y Champions. Total advance was set at 39 degrees in first and second gears, dropping to 36 degrees in third and fourth.

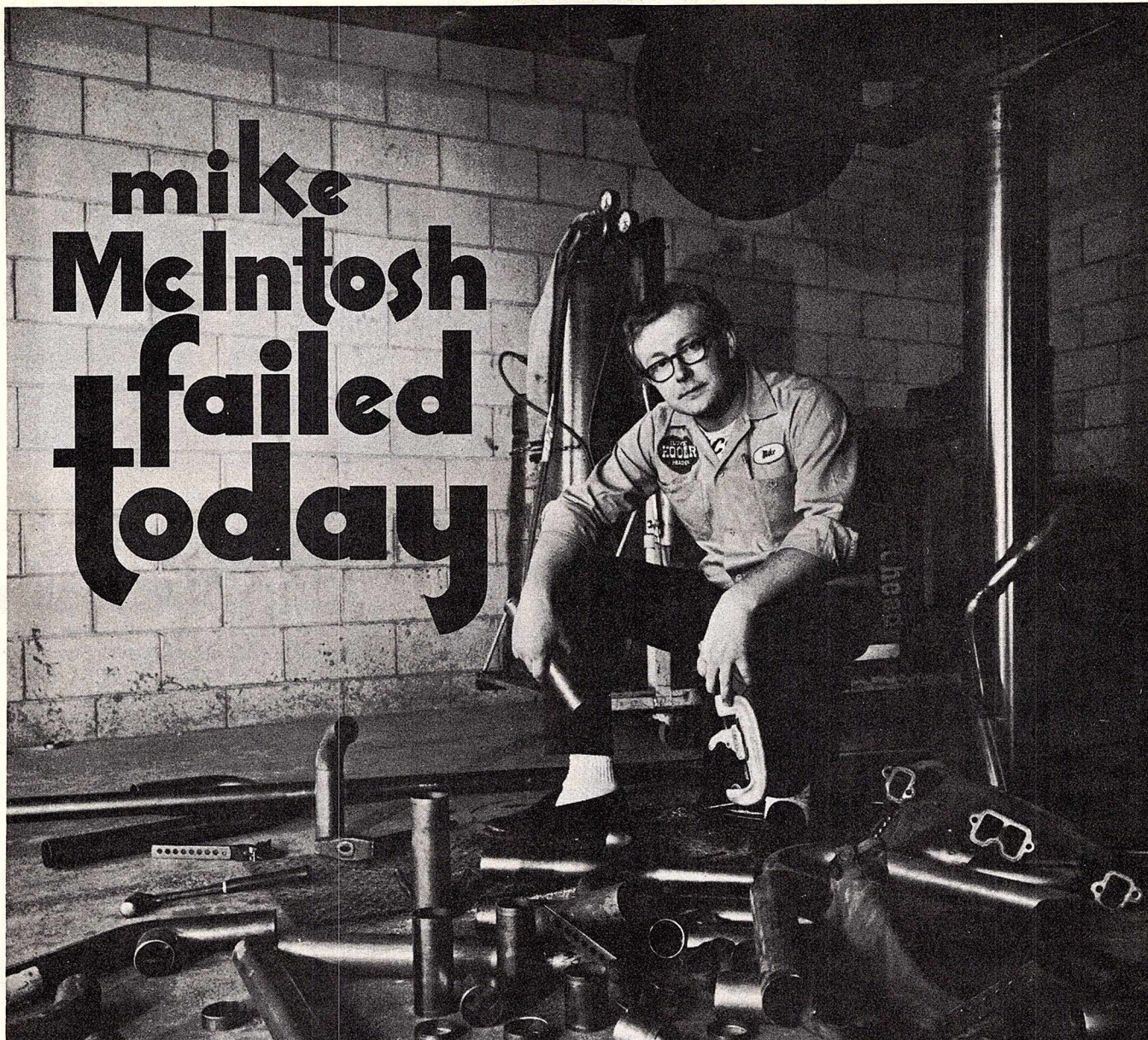
The oil pump, pan and oil pan baffle were all stock '62 Corvette high performance items. Jenkins used multi-grade 20-40W Pennzoil racing oil. A rare Corvette aluminum water pump was bolted to the front of the engine with handmade spacers to line it up with the crank pulley.

When the car arrived at Pomona it had a set of equal-length headers that exited through the fenderwells. The tech inspectors quickly banned the headers, making Jenkins resort to a more conventional under-the-car design whipped up by Hooker. They were constructed from 1½-inch o.d. by 30-inch-long primary pipes with a 3½-inch by 13-inch collector (including transition).

Everyone in the pits and in the stands had a guess about how much horsepower the 327 was making. The answer, according to the Grump himself—540 horsepower at 7500 rpm. He made his shifts at 8,200 rpm.

No doubt there will be faster and more powerful small-blocks coming along in the future. And you can be sure that some of them will come out of Jenkins' Malvern, Pennsylvania, shop. He knows it will take more horsepower to win in the future; people aren't wondering about the feasibility of small-block Pro Stockers any more. But this is what it took to win the 1972 NHRA Winternationals for Bill Jenkins.

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Participants can look forward to four full days of flipfronts, altered wheel bases, huffer-equipped V-8's, farout paint schemes of every conceivable variety, chopped tops, trick suspension systems, and all the innovations imaginable that represent this hobby's present state of the art. A run-what-ya'-brung extravaganza which promises to get it all together for readers of this magazine who are concerned over moves to abolish performance motoring, should and must be on the scene.

For, while the Street Rod and Street Machine segments each enjoy renewed awareness on the part of

the backyard practitioner, legislators at the same time are pursuing their own goals which, if you hadn't noticed, are zeroing in on our beloved street runners. They make no distinction between early and late as we do, and their attacks are unquestionably aimed at the whole of fun car ownership. Now is the time for ALL of us to unite on a national scale if we wish to salvage anything at all from such proceedings.

The Street Machine Nationals—like the Street Rod Nationals, which enjoys great success and now enters its third year as the gathering ground for pre-'49 vehicles—can with equal success, through a showing of numbers, serve to illustrate the *esprit de corps* of turned-on, hard-core car buffs.

All we ask is to be given a chance to meet requirements. And, lest the cart be put before the horse, we want some say before the fact in matters that concern us. Some areas (Pennsylvania, Maine and others) were literally caught with their pants down in recent months and left aghast over laws regarding mufflers, suspensions, carburetion, and so on. Will it happen to you?

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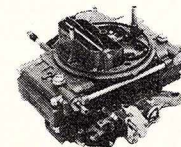
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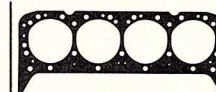
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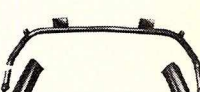


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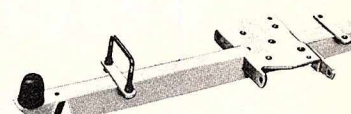
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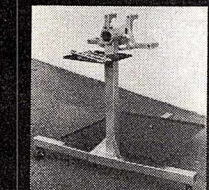
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A FAMILY AFFAIR

(continued from page 66)

there was driving," Jeb says about his early days. And, with that philosophy, he began to polish his talents as a builder and tuner. As far as driving the thing, he really didn't care to.

The summer of 1971 changed Jeb's mind. After finishing his junior year at Bellflower High School, Jeb signed on with Steve Carbone. That was the summer that culminated with Carbone's winning the Nationals. Jeb drove the tow car, wrenched the motor, went out for cokes, chased parts...he was, in short, a "donkey."

His ideas about the unseen worker and the man behind the driver changed. The experience of travel and racing all around the country was fun but, Jeb says, "I found out that a donkey is a donkey. You become classified and no matter how good you are, people still look at you that way." The idea of driving a dragster began to form in his mind.

"He never wanted to drive till he went out with Steve," Betty says. But by the time summer was over, Jeb had convinced the family that it was now his turn. Brother Ed and brother Les step aside, the kid is coming through!

The family decided that Jeb would

have his own car, and ordered the latest Woody chassis. In the meantime, Jeb went for his license in Les' slingshot.

"Leslie told me to run it till it vibrates," says Jeb about his first pass. "I put my foot in it and as soon as I left my head snapped back and it felt like somebody hit me in the chest. About the time my head came back I shut off." How far did the car go? "About from here to there," Jeb says, pointing to the length of his living room.

Everyone in the family was anxious about Jeb's first run. "I was scared," Betty said, "I didn't know how he would react." Guy felt the same trepidation. But Jeb, as soon as he had gotten over the initial shock, came back to make his licensing runs and wound up with a 6.90 e.t. and a speed over 190.

When the new car was finished it turned out to be one of the best looking of the mid-engined breed. It was meticulously detailed. The engine was a dazzling silver glint, everything on it polished or chromed. Several shades of blue laid like ribbons down the long nose. A high, polished wing set the whole combination off. Quite a piece for a 17 year old.

The first time out with the car at Lions nearly made Jeb give up his

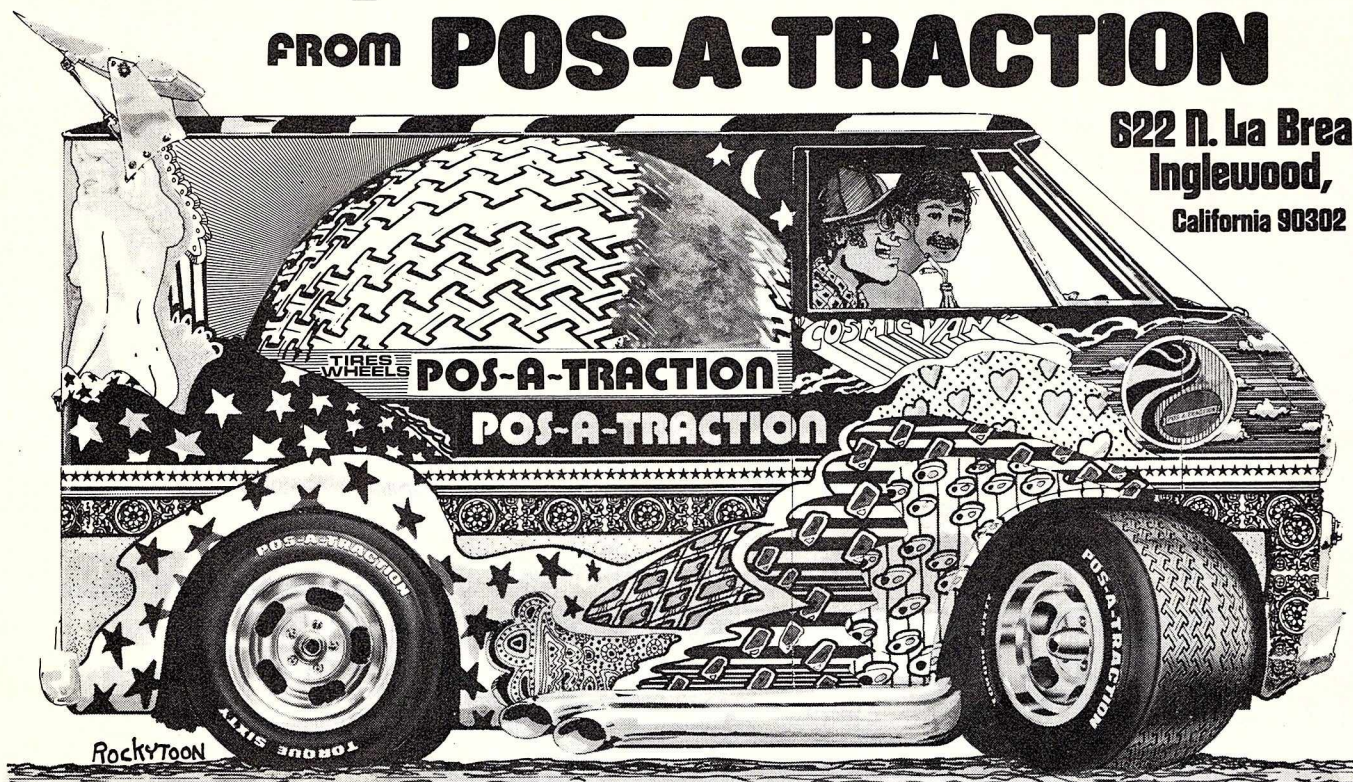
driving ambitions. For starters he accidentally set off the fire bottle in the pits (someone had forgotten to replace the safety pin). Then, after putting out everyone's cigarettes within a 20-foot radius with freon, the car was ready. Many of the other drivers there that day had been giving Jeb advice and encouragement. They all went to the line to watch him make his first pass. He did a burn out, came to the line...and it started raining. A light drizzle, not enough to stop the run. That's what they thought. Jeb left and immediately went up in smoke, a second burn-out. He shut the car off, feeling embarrassed and thinking that he'd made a fool of himself. But Carl Olson, among others, soon brought his spirits back up.

The next week at a meet in Orange County, Jeb qualified with a 6.59. He was building up his confidence and feeling more comfortable in the car. But his lack of experience caught up with him. Jeb was still slow on the lights; coordinating clutch, throttle and the flash of green and orange takes some practice. He made it as far as the semifinal, where Larry Dixon, a wizened veteran, beat him with a 6.70. Jeb lost with a 6.59.

But it all registered in Jeb's mind. He was putting runs on the car and

(continued on page 120)

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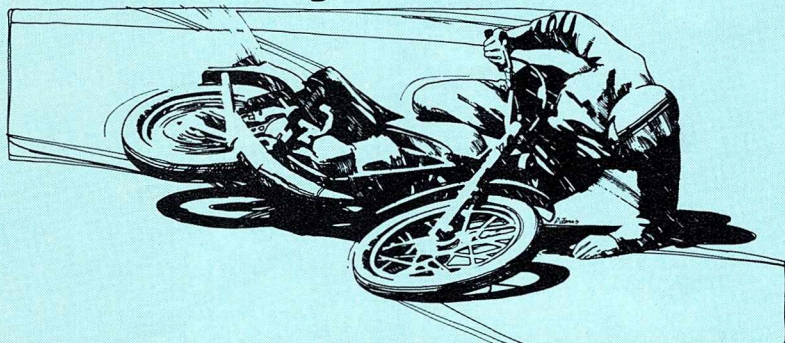
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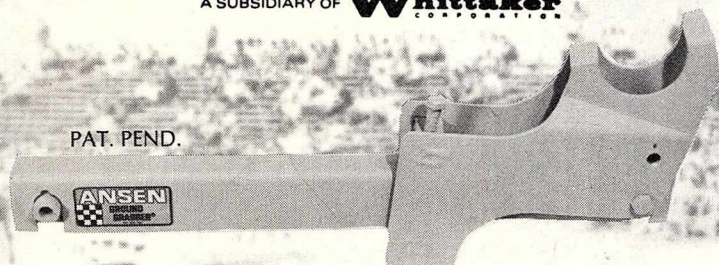


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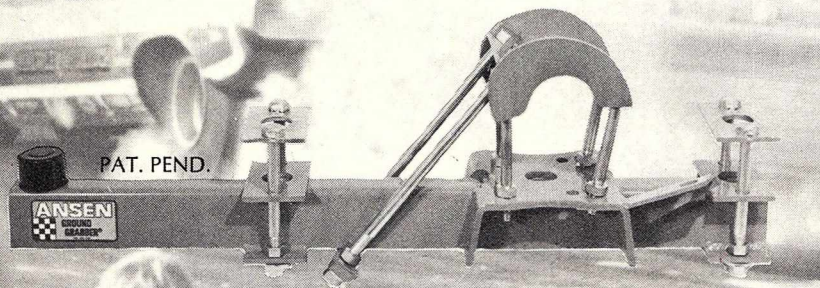
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A FAMILY AFFAIR (continued from page 118)

himself. "The hardest thing was keeping my foot in it," he says. "It took me about 20 runs to do it and not think about it."

The Supnationals at the sprawling Ontario racing colossus was the high point of Jeb's still short career. The announcer let the crowd know that Jeb was only 17 and every soul in the place was rooting for him. Every time he came to the line it was to the sound of cheers. And he came to the line often. He beat one "old man" after another until he tangled with John Wiebe in the semifinal. Experience ruled and Wiebe won, but the high school kid from Bellflower had made an auspicious entry into the big time. Almost as a consolation, the Allens won the Best Appearing Car trophy.

After Ontario Jeb became known, to the fans, to the press and to other racers. His youth made him unusual. After all, a seventeen-year-old kid driving a 220 mile an hour race car; it was impressive.

So now a future lies ahead of young Jeb Allen. He graduates from high school in June, and unlike a lot of other young people, there's no indecision in his mind about what he wants to do in life. He wants to be a professional racer. His parents are all for it. They're not pushing him toward college or into business with his father. "A person ought to do what they're good at," Betty Allen says, "and what makes them happy." Jeb is happy racing, and there's no doubt that he's good at it. And he's getting better.

Now the Allens are busy finding out that professional racing is more than just being able to go fast. They're learning about how to book a car, how much to get, how to plan an itinerary so that you don't have to tow thousands of miles every week, and how to deal with sharp promoters. Guy and Betty plan to spend their time with Jeb on the road this summer. "I couldn't do it without them," Jeb admits. But there will come a time when they'll have to return and Jeb will be on his own. It's then that the boredom, danger and difficulties of professional drag racing will become more apparent to Jeb.

He's had a taste of it, though, and likes it. The boredom you can handle. The danger you don't think about, and you take the difficulties as they come. Jeb is a stocky, square-jawed young man with excess determination. At the rate he's going, he'll be a veteran in 1980 . . . and he'll only be twenty-five. 

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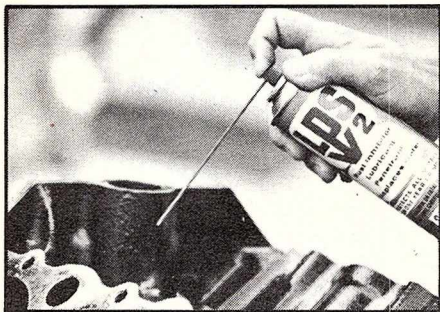
WITHIN THE LAW

(continued from page 40)

pistons, Howard aluminum rods, Sealed Power piston rings, Racer Brown cam, lifters, springs and retainers, TRW bearings, Cloyes timing chain, Edelbrock manifold, Accel ignition, Hedman headers, Flex-A-Lite fan, Precisioneer balancer, Perfection America clutch and Schiefer steel flywheel... all in order to increase performance, much like you would do.

The end result of the parts gathering produced a 283 bored .030" with a ported set of stock power pack heads containing a good valve job, and a compression ratio of 9.5 to 1.

In conversations with ol' Racer Brown, I placed emphasis on wanting a "seat of the pants" type street vehicle...something that would give the driver and/or passenger a good solid feel of acceleration, since this was not to be an all-out competition vehicle. He came up with a 266 duration/.485-inch lift street/strip special. I wanted also to construct a good reliable machine, so I opted for a single 4-barrel carburetor on an Edelbrock Tarantula manifold complemented by a set of Hedman headers.



During rebuild a good spray lubricant is used to displace water in the block after thoroughly scrubbing with soap and water.

Once complete and reinstalled in the car, I proceeded to break 'er in, so to speak, and after 250 miles I returned to the Clayton dyno. While on the testing facility, I tested the two most popular type carburetors, the Holley spread bore and the Carter Thermo Quad. As it turned out, the two carbs have almost identical fuel curves and total emission readings.

The new engine's emission figures were:

(Figure-IB)

Mode	Idle	Lo Cruise	Hi Cruise
CO%	2.5	.2	.3
HC/PPM	700	80	150
NOX PPM	225	275	700

Note: 10° initial advance @ 750 RPM; carb set for 2.5% CO.

The percentage of improvement (see Graph A) has a considerable

(continued on page 128)

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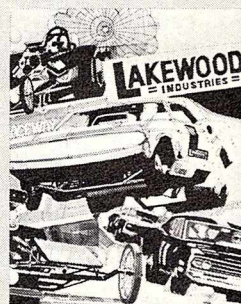
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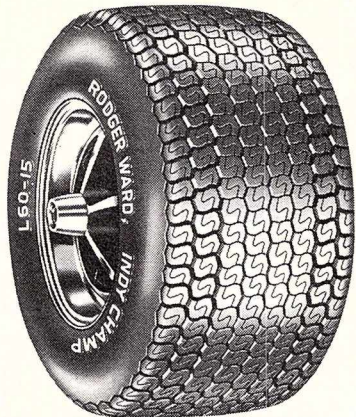
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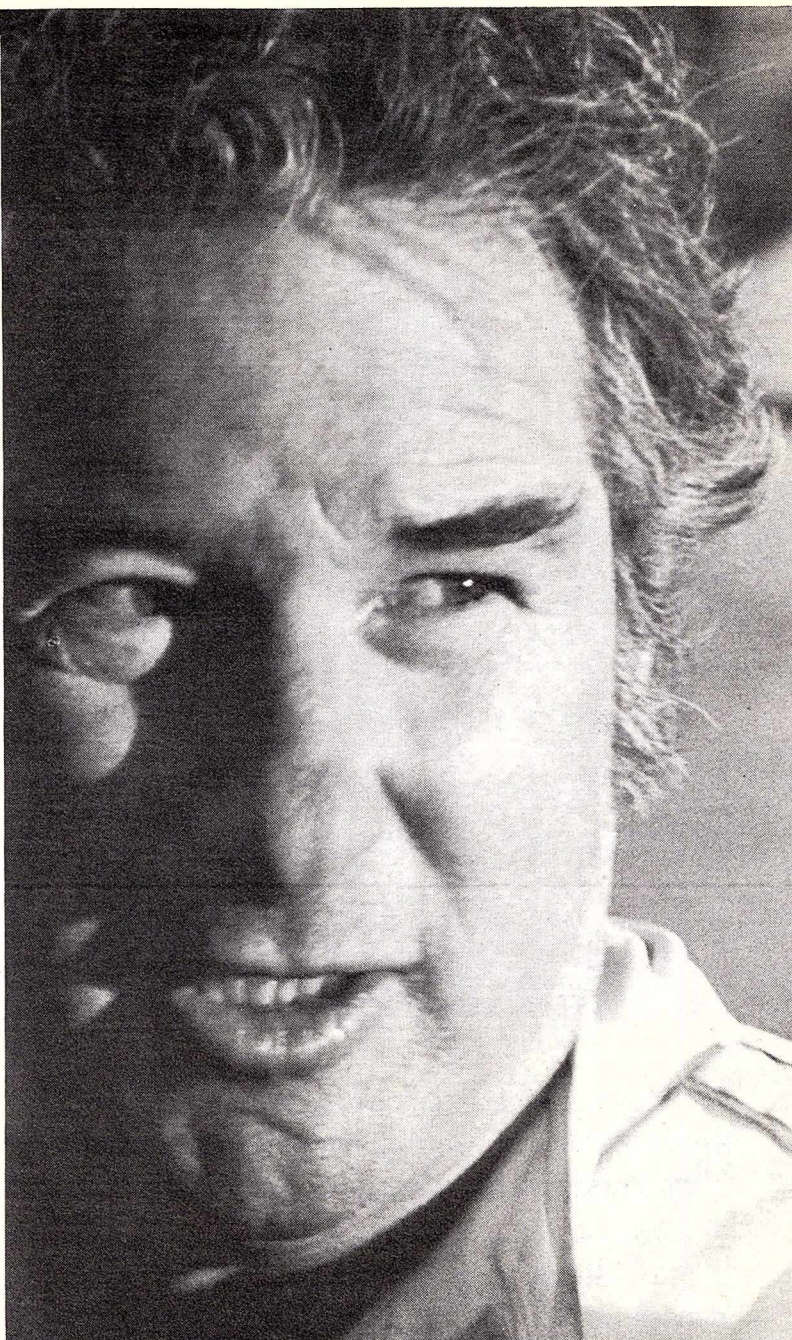


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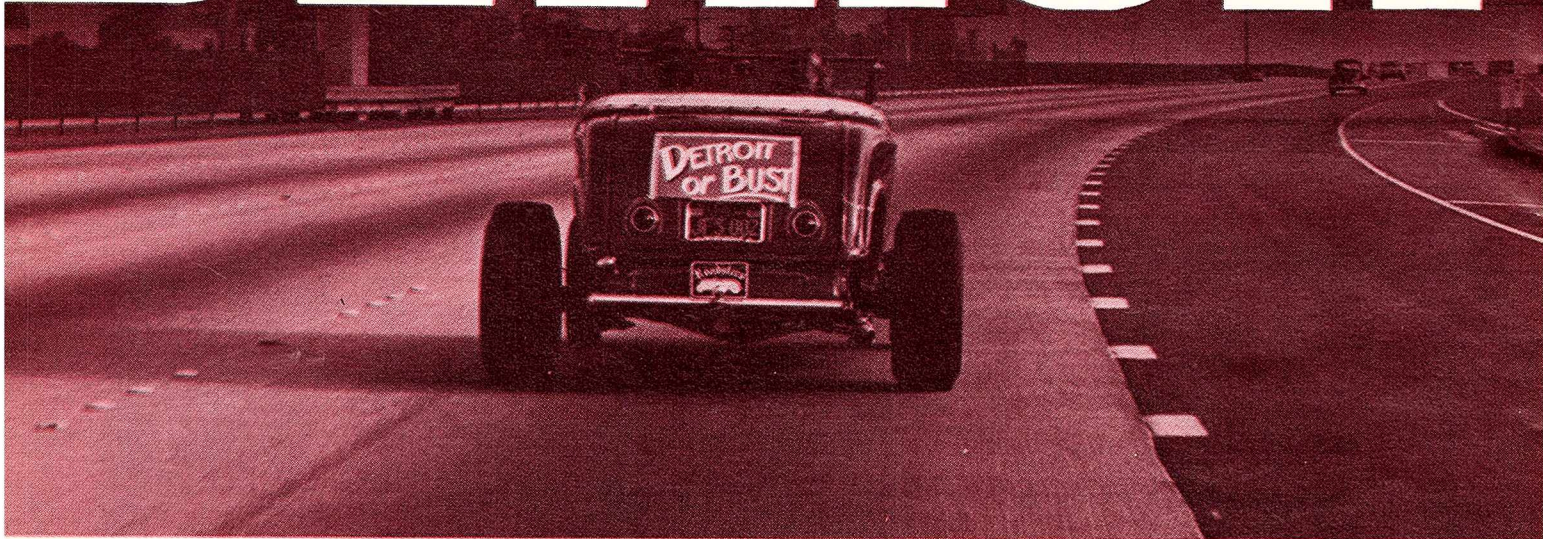
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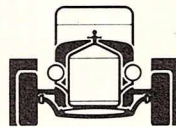
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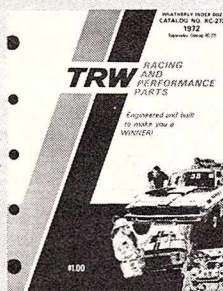
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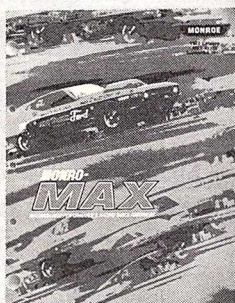
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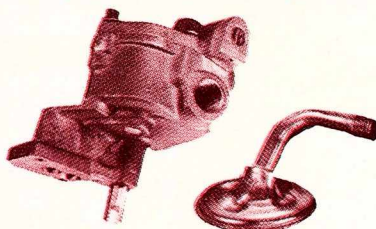
ANSEN WHEEL CATALOG

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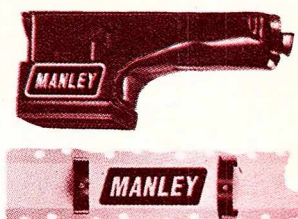
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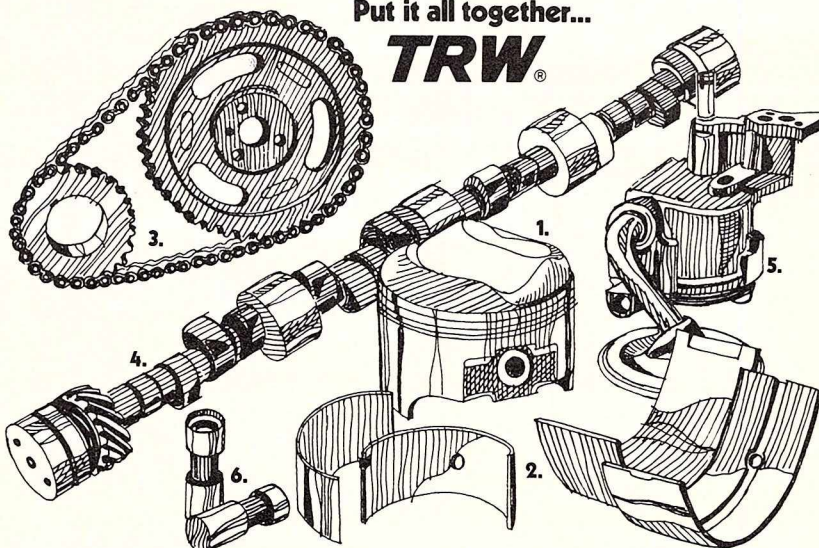
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HI-ROD

WITHIN THE LAW

(continued from page 123)

range. (You must remember, however, that this is a pre-smog engine with only a positive crankcase ventilation [PCV] valve to help reduce emissions produced from blow-by). Judging from the maximum emission valves set up by the Clayton people for pre-66 cars, we have an exceptionally clean engine, but there is one more comparison to be made.

Recently, a test was conducted by a major aftermarket manufacturer on a smog-controlled 350ci 4-barrel carb 1970 Chevrolet using the seven mode test to establish a base line. This Chevy at a 30 mph constant run (mode 3 on the seven mode is equivalent to the Clayton Lo Cruise mode) produced a high of .31% CO, 218 ppm of HC and 2497 ppm of NOx. Our test engine produced a high of .20% CO, 75 ppm of HC and 275 ppm of NOx...an improvement of 33% less CO, 35% less HC and 85% less NOx (see Graph B).

Two additional results, one expected—one unexpected, were realized after all the testing was complete. Performance is definitely up, as the car is some two seconds quicker with a best of 15.77 e.t. and speed of 91 mph. Surprisingly, the mileage has gone up from 13.2 to 15 miles per gallon.

We achieved these encouraging figures by using high performance parts which by improving performance also improved "emissibility." The camshaft, for instance, offers faster valve action, improving the combustion filling and exhausting and controlled overlap to recycle some of the exhaust to reduce the NOx; improved intake manifold offers better distribution and more accurate air/fuel ratio control; the performance ignition offers a hotter spark and more accurate timing for more complete combustion; tubing headers for improved exhausting of spent gases and heat dissipation which helps the NOx problem; and high performance piston rings which help to control blow-by and seal in compression to keep the HC to a minimum; head work and polished valves help improve breathing.

I ended up with an engine that is more powerful, faster, cleaner and more economical due directly to the improvement in engine efficiency... sometimes known as high performance.

In closing, I would like to inform you that this is the first of what I hope to be a continuing series of tests performed by *HOT ROD INDUSTRY NEWS* involving air pollution and its effect on the high performance industry.



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The Elapsed Times

March

March

MC EWEN WINS

Famosa Drag Strip, Bakersfield, Calif., March 3, 4 & 5—Tom "The Mongoose" McEwen marched past a strong 32-car Top Fuel field to win the 14th Annual Bakersfield Fuel and Gas Championships. The "March Meet," traditionally a fine fuel show, was a fitting place for McEwen's return to the winner's circle. It was long overdo, as McEwen's racing efforts have met with more than a reasonable share of bad luck in the past.

Using his new Garlits'-chassied and Ed Pink-powered digger, "The Goose" lead qualifying with a 6.55, and a comfortable margin over Hank Johnson's second-best 6.62. In the finals, it was obvious that McEwen had arrived. In every round he displayed a relaxed technique at the starting lights and an impressive display of power potential as he consistently drove around his opponents in the mid-range.

On his way to the final, McEwen laid down a constant stream of low e.t.'s while

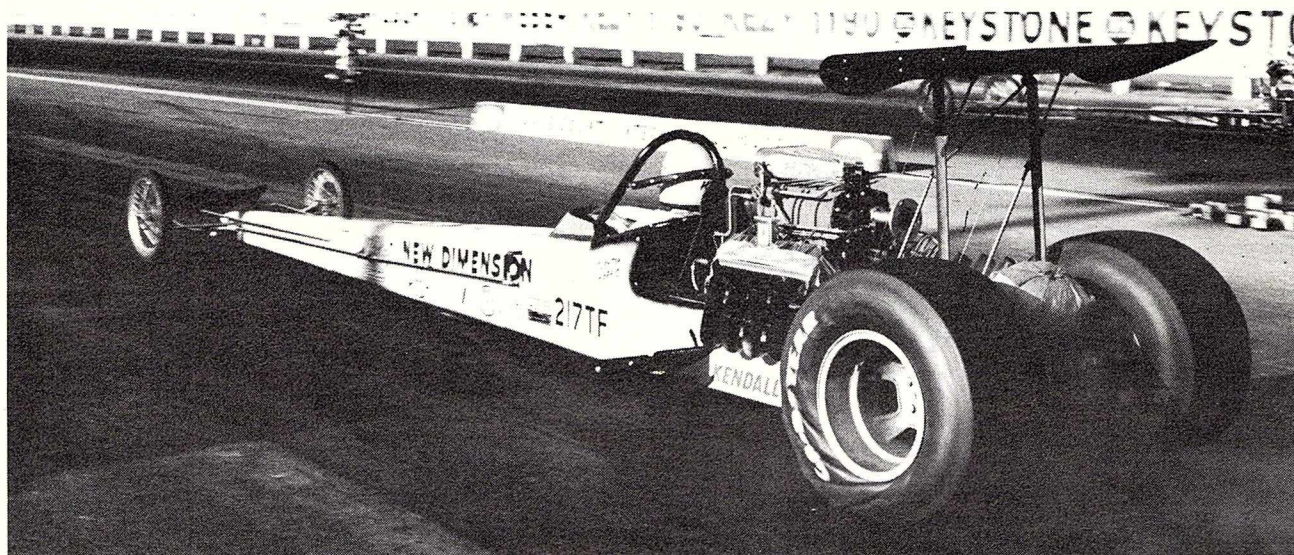


beating Gary Southern (with a 6.44), Paul Gomme (a 6.37), Dwight Hughes (a 6.35) and Dwight Salisbury (a 6.440). Meanwhile, other crowd favorites were dropping out as the competition became increasingly tough.

Don Prudhomme lost fire in the first round. John Wiebe had Donovan's 417 in Donovan's lightweight short-wheelbase digger (piloted briefly by Butch Maas last year), but could not keep the car consistent. Tony Nancy and Dennis Baca each demolished a blower. Tony Nancy, James Warren, Hank Johnson and Gay Cochran, each a strong contender, fell by the wayside as the field narrowed.

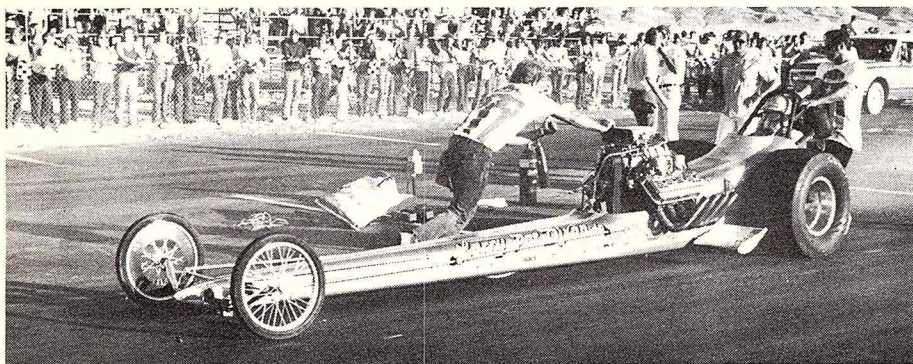
In the final McEwen faced Winternationals winner Carl Olson. Both machines were beautifully prepared and each sounded in top shape. At the green, both cars moved together and it was almost a dead heat to the 1000-foot mark. In the lights, McEwen came out on top with a 6.44/232.55 to Olson's 6.54/226.13.

In the other eliminators, Ed McCulloch pushed the "Holy Smokes" Barracuda Funny Car to the win circle with a 7.09/213.54 single as Jim Dunn broke a clutch during a



Lions Drag Strip, February 19—Clayton Harris and Jack MacKay's "New Dimension" Dragster ran the quickest time ever recorded in drag racing, a 6.16 at over 234 miles an hour. After their stunning performance at OCIR the week before, the Mississippi team came out to Lions to test their spare engine before heading back east. Their warm-up run was a 6.26, and then they unreeled the 6.16.

burnout. Butch Leal came through as a crowd favorite to take Pro Stock with a 9.72/141.95 over Bob Lambeck's 9.97/140.62. Rich Galli outran Don Enriquez for the Fuel Combo title 7.538/178.21 to Enriquez' 7.893/139.96. Dave Vanderbeke took Modified with a 12.00/110.83. Kay Sissell took home Competition honors with a 8.96/155.44 and Val Hedworth won Super Stock with a 13.84/81.66.



Dixon, Ruth and Leal Win Vegas Opener

LAS VEGAS SPEEDROME, LAS VEGAS, NEVADA, MARCH 4,5—The opening of Las Vegas' newest attraction, a multipurpose racing facility, saw record times and a fine turn-out. The track is at an altitude of over 3000 feet so the times were off several tenths from

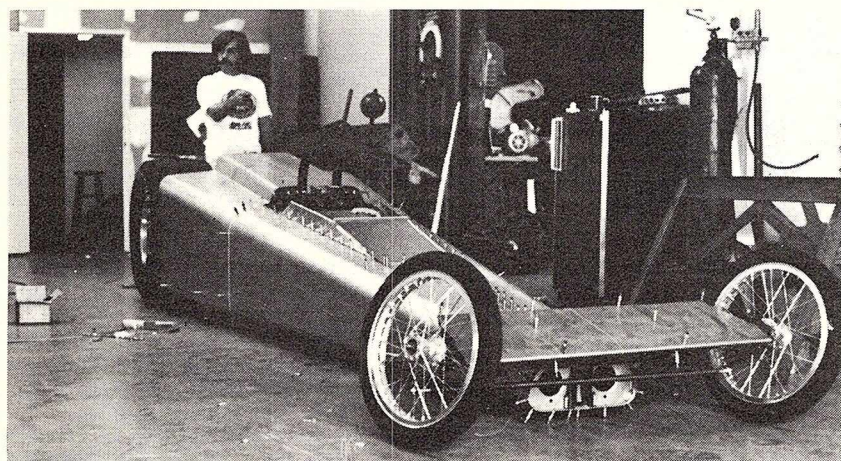
what they would be at sea level, but in many cases they were still impressive, particularly for a new racing surface.

The 16-car Top Fuel field was led by the amazing Clayton Harris, who was low

(continued on following page)



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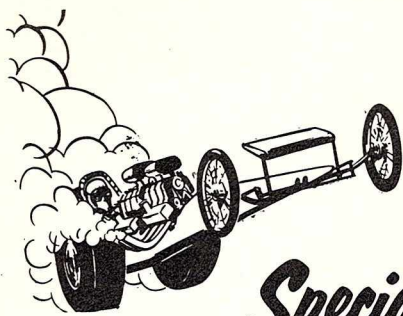


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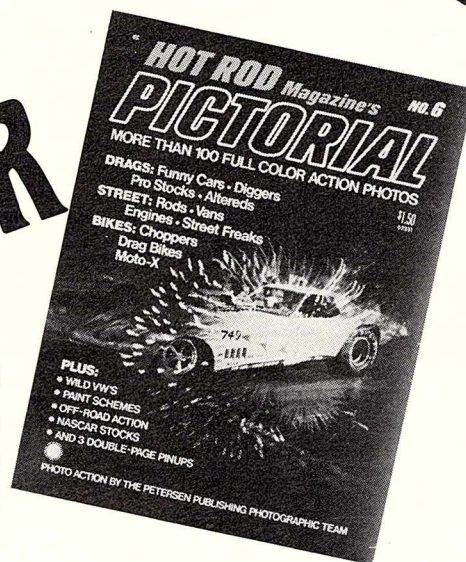
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ELAPSED TIMES

qualifier with a 6.59. However, Harris broke a rear in the first round and was out of the race. He returned to run a match race against Tom McEwen later in the meet. McEwen went out in round two when his motor died on the line. But in his race against Harris, The Mongoose cut low e.t. of the meet with a 6.50. His new Garlits car is going to be tough. Larry Dixon, driving his old slingshot, won the meet and beat Paul Gommi, John Wiebe, Jeb Allen and Bob Noice.

Jerry Ruth won Funny Car with performances that set strip and state records round after round. His final run against Gary Burgin netted a 6.97, which stood as Low E.T.

Butch Leal won Pro Stock handily against an undistinguished field. Only Dick Landy and Ken VanCleave had any chance against "The Flash," but both missed shifts in preliminary rounds.

Clayton Harris Runs Quickest Times

ORANGE COUNTY INTERNATIONAL RACEWAY, CALIFORNIA, FEBRUARY 13—A bunch of "ol' boys" from Mississippi routed southern California's best racers here as decisively as the Rebels ran off the Yankees at Bull Run. Clayton Harris, driving Jack MacKay's "New Dimension" dragster put together a string of 6.20 runs that left his competitors shaking their heads in disbelief.

Harris' mount is a fairly standard-looking rear-engined car built by Bill Stebbins in Kentucky. It originally relied on a 392 Chrysler for power when it was first introduced toward the end of the 1971 season. When the car was brought out to the Coast for the Winternationals, the 392 was replaced by a Pink-prepared 426 late hemi. Harris made the show at Pomona, but was beaten in the second round by Don Moody. During the week after the Winternationals the 426 engine was replaced by a 480-inch stroker motor and a high-mounted wing was added over the rear.

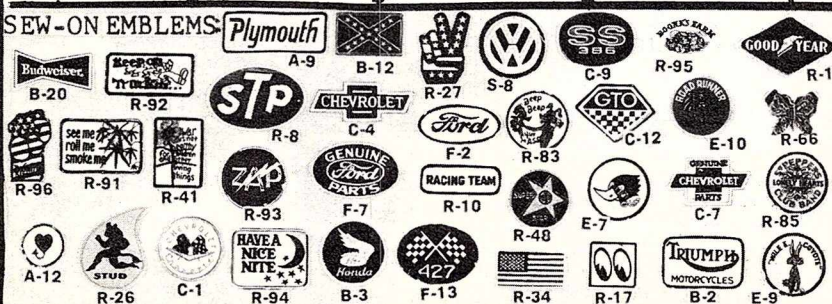
Harris then brought the car to OCIR's third All Pro race and qualified with a 6.24. During eliminations he put away Flip Schofield, Steve Carbone and Carl Olson. Each of these runs was in the 6.20's at over 232 mph. Harris' best time was a 6.22 and his best speed was 235.60.

The performance of the "New Dimension" was the highlight of the meet and nearly overshadowed the rest of the show. Pat Foster beat Don Cook in the final round of Funny Car with a fine 6.58. Butch Leal continued to demonstrate his Pro Stock superiority by winning his third straight All Pro meet.

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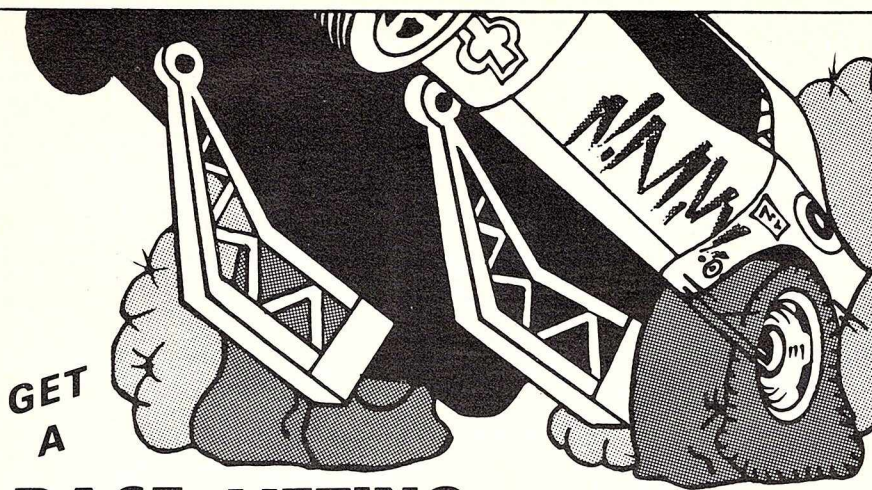


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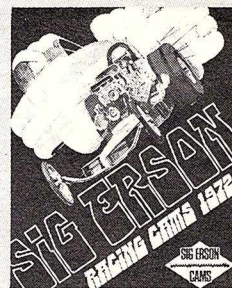
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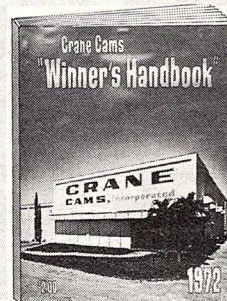
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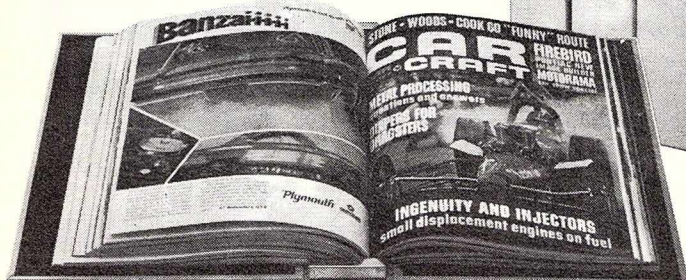
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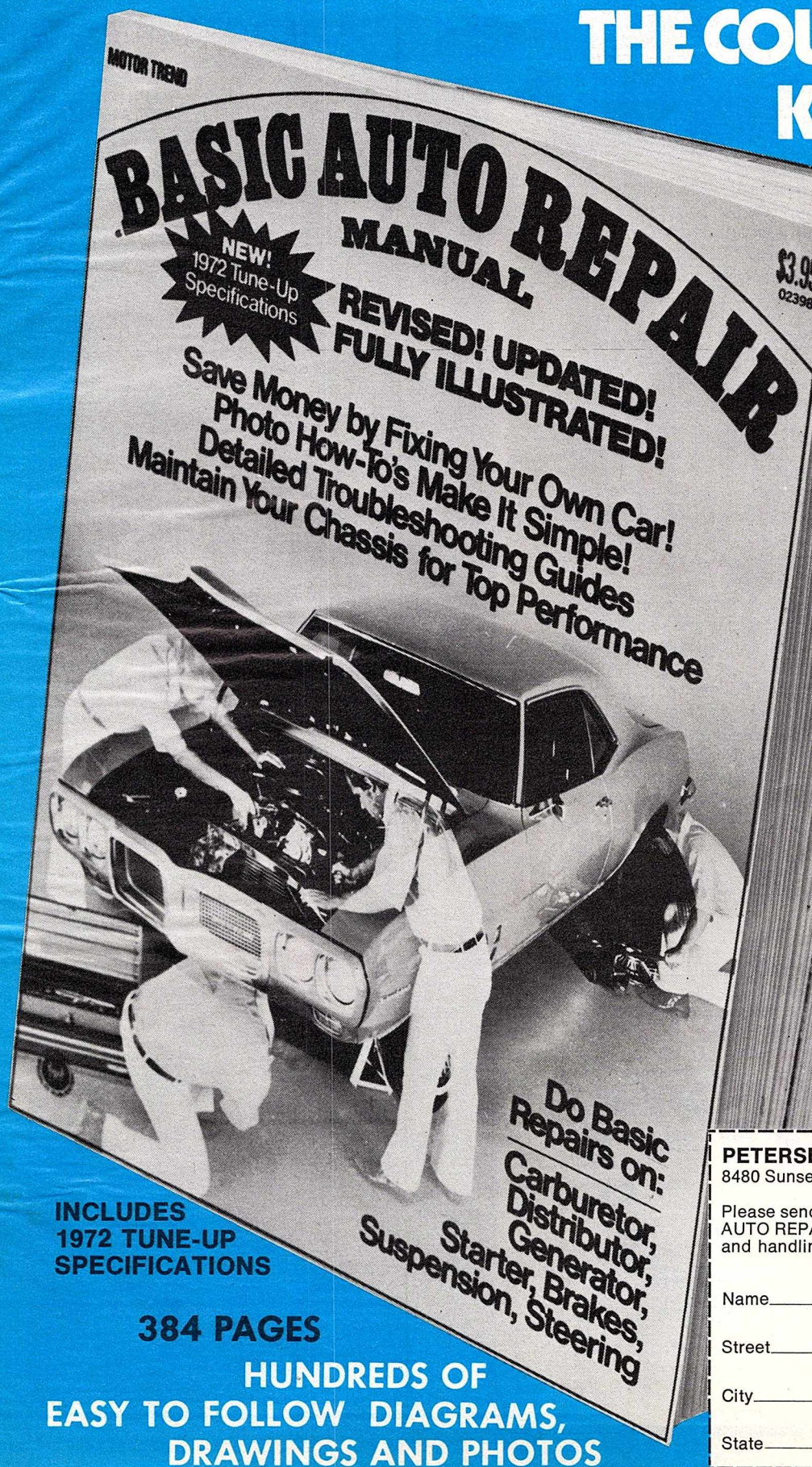
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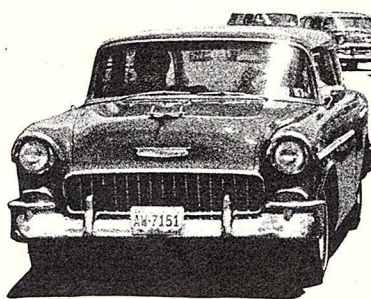


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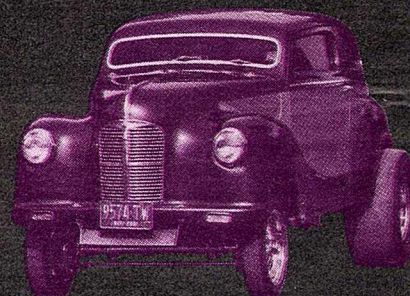
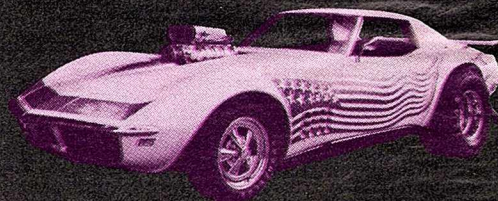
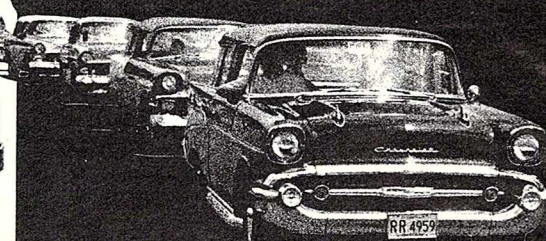
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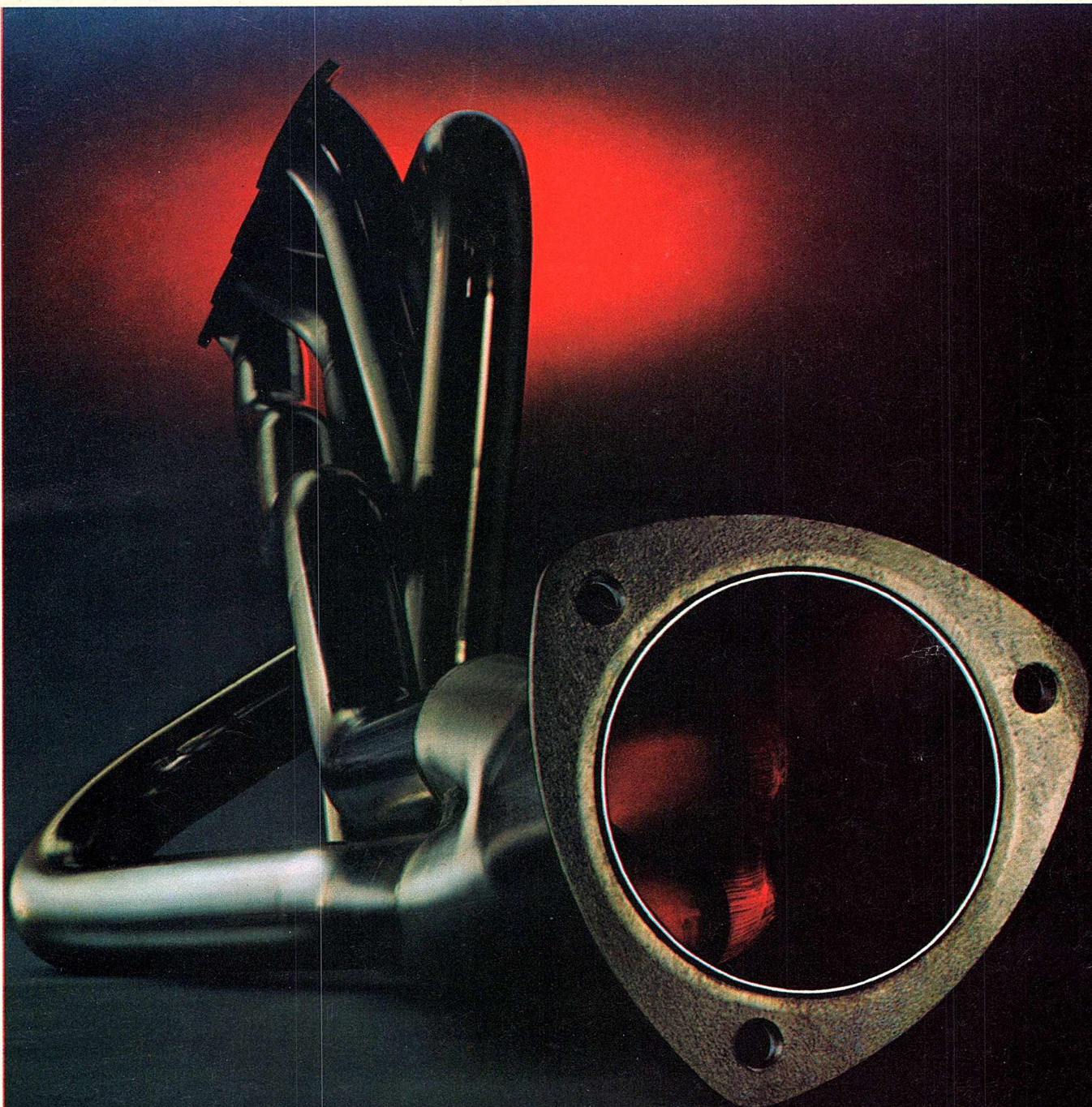
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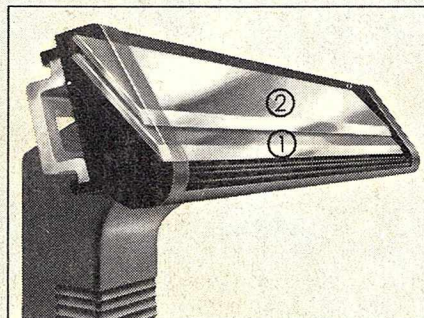
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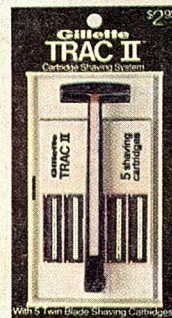
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